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OIL AND GAS DEVELOPMENTS IN PENNSYLVANIA IN 1985

John A. Harper

John F. Carll, Early Survey Petroleum Geologist

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
OFFICE OF RESOURCES MANAGEMENT
BUREAU OF
TOPOGRAPHIC AND GEOLOGIC SURVEY
Arthur A. Socolow, State Geologist

DEDICATION

John F. Carll (1828–1904) (see cover) was a pioneering petroleum geologist who worked for the Second Geological Survey of Pennsylvania (1874–90). Under the direction of State Geologist J. P. Lesley, Carll studied the oil field areas of Butler, Clarion, Venango, and Warren Counties. His perseverance and attention to details resulted in the inauguration of subsurface geological methods, such as subsurface structural mapping, still being used today by professional geologists from industry, government, and academia. Because of Carll's contributions in Pennsylvania's oil fields, he has been credited by many as having virtually created the science of petroleum geology. In honor of the 150th anniversary of the Pennsylvania Geological Survey, this report is dedicated to the memory of John F. Carll.

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by John A. Harper
Pennsylvania Geological Survey

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ABSTRACT

Pennsylvania's oil production totaled 4,850,968 barrels in 1985, a slight increase over 1984 production. Oil reserves decreased 8 percent, from 57,859,000 barrels in 1984 to 53,007,000 barrels in 1985. Leading counties for production of oil were Warren, Venango, and McKean. In 1985 secondary recovery of oil in the Bradford field accounted for approximately 28 percent of the state total.

Gas production decreased 10 percent from 166,342 million cubic feet in 1984 to 150,541 million cubic feet in 1985. Gas reserves increased 4 percent from 1,904,856 million cubic feet in 1984 to 1,979,369 million cubic feet in 1985. Stored recoverable gas decreased 14 percent, to 537,090 million cubic feet.

The price for crude oil and oil products remained relatively steady in 1985. The price of Penn Grade Crude oil started the year at $25.40 per barrel and ended the year at $26.00 per barrel. There were minor fluctuations in pricing throughout 1985. Most new-gas prices were subject to Natural Gas Policy Act price ceilings. The well-head price of 1,000 cubic feet of natural gas ranged from a low of $0.48 under old contracts to $5.46 for "tight" gas (NGPA Section 107, High-Cost Gas). The average price for gas was about $3.15.

The total number of wells reported drilled in 1985 was 4,657, a 79 percent increase from 1984. Total footage drilled was 10,647,842 feet, a 71 percent increase. The total number of oil wells reported was 2,471, an increase of 130 percent over the 1984 figure of 1,073. The most active counties for oil well drilling were Venango, Warren, Forest, and McKean, accounting for 95 percent of all oil wells drilled in the state. A total of 1,894 gas wells was reported in 1985 for a 37 percent increase from 1984. The most active counties for gas well drilling were Erie, Indiana, Clearfield, Crawford, Jefferson, and Westmoreland, accounting for 70 percent of all gas wells drilled in the state. There were 77 combination oil and gas wells reported in 1985, an increase of 93 percent over 1984. Most of these wells were drilled in McKean, Warren, and Mercer Counties.

Development drilling in 1985 increased 80 percent, to 4,443 wells. Exploratory drilling increased by 28 percent in the same period, from 86 wells reported in 1984 to 110 wells reported in 1985. The success rate for development drilling was 98 percent; it was 76 percent for exploratory drilling.

Seismic exploratory activity increased by 33 percent, from 9.2 crew-months in 1984 to 12.2 crew-months in 1985. Seismic crews operated in 17 counties in Pennsylvania during the year.

Project activity within the Oil and Gas Geology Division of the Pennsylvania Geological Survey in 1985 included completion of the initial phase of revisions of the oil and gas well-record files and the oil and gas base-map series, and study of Pennsylvania's oil and gas reservoir rocks. The initial phase of the map and file revision project resulted in the files and maps being revised to the state's permit numbering system, and the base maps being revised to 7½-minute scale from the previous 15-minute scale. Future work on this project will result in periodic updating of the maps. The oil and gas reservoir study will detail the petrographic and petrophysical characteristics of the various hydrocarbon reservoirs which produce Pennsylvania's oil and gas. The purpose of the project is to provide operators with a guide to these reservoirs in order to plan for exploration and exploitation.

INTRODUCTION

The year 1985 was pivotal for the oil and gas industry nationwide as the price for natural gas and crude oil began to decline, particularly at year's end. In Pennsylvania, 1985 marked the beginning of a new oil and gas law and a beginning slowdown of drilling. Many of the wells reported in this volume were actually drilled in previous years. For example, about 80 or 90 percent of the shallow oil wells reported here were drilled between 1980 and 1984. Some operators took advantage of the old oil and gas law, which only required them to submit a completion report when a well was "completed for production," a nebulous definition. As such, many of them declined to send in a record for two or three years, and the backlog of wells needing to be processed through the Bureau of Oil and Gas Management and the Oil and Gas Geology Division of the Pennsylvania Geological Survey increased without a subsequent increase in personnel to handle the paperwork.

This annual report of oil and gas drilling and production in Pennsylvania is based for the most part on drillers' well records and location plats filed with the Bureau of Oil and Gas Management, Pennsylvania Department of Environmental Resources. The statistics of oil and gas drilling are compiled only from the records received during the calendar year. This includes records of wells drilled prior to, but reported in, 1985; it does not include 1985 wells for which records were submitted to the Commonwealth after December 31, 1985.

ACKNOWLEDGEMENTS

Grateful acknowledgement is extended to the following industry and government organizations without whose help this report would have been impossible: the American Gas Association; the American Petroleum Institute; the Appalachian Oil Scouts Association; the Bureau of Oil and Gas Management, Pennsylvania Department of Environmental Resources; the Bureau of Statistics, Pennsylvania Department of Commerce; and the Division of Minerals, Bureau of Forestry, Pennsylvania Department of Environmental Resources.

Statewide crude oil production and reserve figures are published courtesy of the Penn Grade Crude Association of Bradford, Pennsylvania. Ms. Mary Ann Gross, Equitable Gas Company, supplied statewide data on natural gas production and reserves.

Special thanks go to all of the operators, companies, and personnel of Pennsylvania's oil and gas industry who provided data on producing formations, intervals, drilling costs, oil and gas prices, and other miscellaneous information throughout the year.

The following staff members of the Oil and Gas Geology Division, Pennsylvania Geological Survey, are acknowledged: Cheryl L. Cozart, who assisted in the compilation of statistical data in this report; Christopher D. Laughrey and Robert M. Harper, who assisted with the deep-well summary tables; and Lajos J. Balogh, who drafted the figures.

PRODUCTION AND RESERVES

CRUDE OIL PRODUCTION

Pennsylvania's crude oil industry produced 4,850,968 bbl (barrels) of Penn Grade crude oil in 1985, a slight (less than 1 percent) increase over the 1984 production total of 4,824,966 bbl. Most of this production was from Upper Devonian and Lower Silurian reservoirs, but there was probably some subsidiary production from Pennsylvanian and Mississippian reservoirs. Lower Silurian Medina Group sandstones in Erie and Crawford Counties produced 163,118 bbl of crude oil, an increase of 35 percent over the previous year. See Figure 1 for a summary of these statistics.

Figure 1. *Crude oil production in Pennsylvania, 1985.*

Penn Grade oil[1]	*1985*	*1984*	*% Change*	*Cumulative to 12/31/85*
Shallow oil[2]	4,688	4,704	0	1,321,414
Deep oil[3]	163	121	+35	[4]1,459
TOTAL OIL	4,851	4,825	+ 1	1,322,873

[1]In 1,000 barrels.
[2]Shallow oil: from Late Devonian or younger rocks, generally less than 2,000 feet deep.
[3]Deep oil: from Lower Silurian Medina Group.
[4]Includes production of oil previously classified as "Corning Grade."

Figure 2 illustrates the amount of oil produced and the total number of producing oil wells in Pennsylvania in 1985, by county. Production statistics for oil in Pennsylvania's counties are based on commerce figures, the amount which is shipped or sold, rather than on the actual amount produced from

Figure 2. *Oil wells and crude oil produced in Pennsylvania in 1985 and 1984, by counties.*[1]

County	Crude oil production (barrels) 1985	1984	Number of producing oil wells 12/31/85	12/31/84
Allegheny	76,825	79,290	133	229
Armstrong	9,991	10,168	47	60
Beaver	40,656	48,464	63	67
Butler	64,487	66,936	354	464
Clarion	36,542	41,586	184	205
Clearfield	1,257	243	7	4
Crawford	148,368	116,138	203	180
Elk	556,241	[2]546,525	77	[2]102
Erie	7,183	4,838	99	99
Fayette	104	128	2	1
Forest	250,215	198,787	297	972
Greene	26,463	27,110	190	218
Indiana	6,690	3,962	227	129
Jefferson	4,040	4,899	55	41
Lawrence	87	173	1	2
McKean	813,827	759,502	6,603	7,598
Mercer	11,654	9,298	131	90
Potter	16,964	21,703	51	98
Venango	790,931	903,016	1,193	3,822
Warren	1,280,456	1,295,296	1,735	4,877
Washington	102,523	94,707	167	279
Westmoreland	11,944	9,574	58	53
TOTAL	4,257,448	4,242,343	11,877	19,590

[1]Compiled by the Pennsylvania Department of Commerce, Bureau of Statistics.
[2]Corrected figure.

each well. The leading counties for oil production during the year were Warren, Venango, and McKean, in that order, continuing a trend that has been established for a number of years. These three counties were responsible for 68 percent of the total oil produced in Pennsylvania.

DEVELOPED CRUDE OIL RESERVES

Developed crude oil reserves in Pennsylvania totaled 53,007,000 bbl at the end of 1985. This figure represents an 8 percent decrease from the 1984 total of 57,859,000 bbl. The areas having the highest oil reserves in the Commonwealth included the fields of McKean, Elk, and Potter Counties, the "middle district" (Venango, Forest, and Clarion Counties), and Warren County. Economically recoverable reserves declined in all areas, however, due to the general impact of declining prices and a declining industry nationwide, the federal injection control law, and the Commonwealth's new oil and gas law (Act 223). In 1985 prices for crude oil declined, and at the same time drilling costs for many secondary and tertiary recovery wells increased because the federal underground injection control law required operators to run casing in the holes. As a result, the anticipated reserves of a year or two ago are now seen as unrealistic. Figure 3 shows crude oil reserve statistics by shallow and deep reservoirs.

ENHANCED OIL RECOVERY

A total of 104 service wells, including waterflood wells, gas-injection wells, disposal wells, stratigraphic core test wells, and gas storage observation

Figure 3. *Crude oil reserves in Pennsylvania, 1985.*

Reserves[1]	*1985*	*1984*	*% Change*
Shallow oil[2]	52,265	56,954	- 3
Deep oil[3]	742	905	-18
Total oil	53,007	57,859	- 8

[1]In 1,000 barrels.
[2]Shallow oil: from Late Devonian or younger rocks, generally less than 2,000 feet deep.
[3]Deep oil: from Lower Silurian Medina Group.

wells, was reported in 1985. Elk County had 45 service wells, mostly waterflood wells for enhanced oil recovery and core wells for geological and engineering evaluations. McKean and Venango Counties had 31 and 25 service wells, respectively, most of which were for gas or water injection for enhanced recovery of oil. Other service wells were reported in Potter, Tioga, and Warren Counties. These 104 service wells represent a 126 percent increase in oil-related services over 1984.

In a historical sense, the Bradford field in McKean County is the first field in which large-scale waterflooding technology was attempted. Flooding began in the field, probably by accident, sometime in the late 1800's, and intentional flooding began soon after. It was not until the early 1900's, however, that noticeable production enhancement became apparent. Since that time, most of the Bradford field has been under waterflood. Figure 4 shows the changes in oil production in Pennsylvania since Drake's well was drilled in 1859, and the changes in oil production in the Bradford field. It should be noted that in 1985 the Bradford field produced approximately 28 percent of the total state production.

Pennzoil Company operates a tertiary-recovery project of the microemulsion-polymer type in the Bradford Third sand of the Bradford field. A

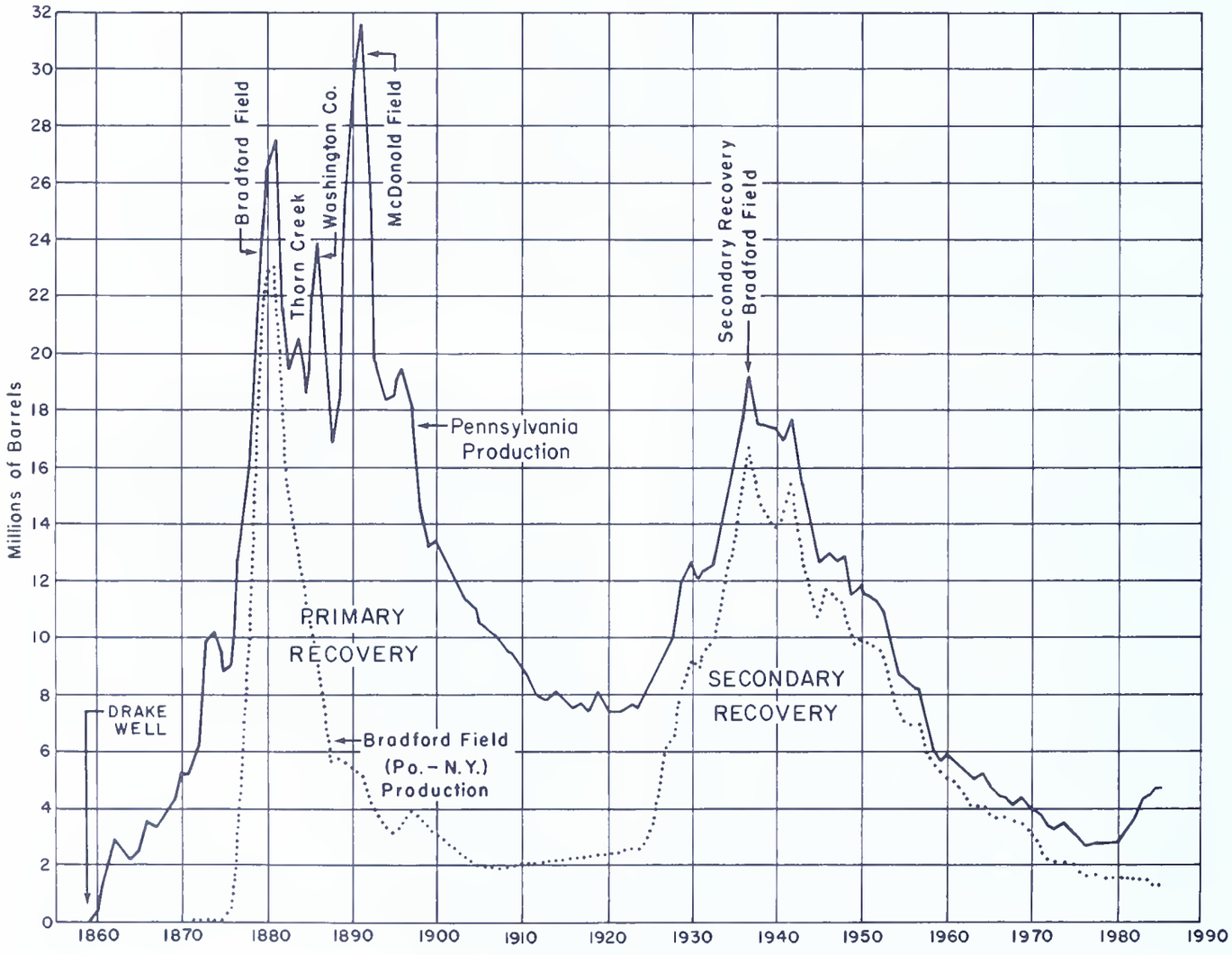


Figure 4. Annual production of crude oil in Pennsylvania, 1859-1985.

former project, Special Project 7, was abandoned in 1984. Special Project 8 was still in the polymer-solution injection stage at the end of the year and was recovering tertiary oil. Because of the success of their secondary- and tertiary-recovery projects in McKean and Elk Counties, in particular, Pennzoil has been evaluating other areas of the Commonwealth for future enhanced oil recovery potential.

NATURAL GAS PRODUCTION

Pennsylvania's natural gas production decreased in 1985 by 10 percent, from the 1984 total of 166,342 Mmcf (million cubic feet) to 150,541 Mmcf. The number of producing gas wells increased 5 percent to an estimated 26,500. Figure 5 shows 1985 gas production statistics for Pennsylvania. Included is a general breakdown of gas production by shallow and deep reservoirs.

Figure 5. *Natural gas production in Pennsylvania, 1985.*

	[1]*1985*	[1]*1984*	*% Change*	*Cumulative to 12/31/85*[1]
Shallow gas[2]	112,739	[3]133,908	-16	—
Deep gas[4]	37,802	[3]32,434	+17	—
TOTAL GAS	150,541	166,342	- 9	10,070,188

[1]In millions of cubic feet.
[2]Shallow gas: from Late Devonian or younger rocks; generally less than 4,000 feet deep.
[3]Corrected figure.
[4]Deep gas: from Middle Devonian or older rocks; generally more than 4,000 feet deep.

NATURAL GAS RESERVES

Proven recoverable reserves of natural gas in Pennsylvania increased 4 percent to 1,979,369 Mmcf in 1985. Stored recoverable gas decreased 14 percent, to 537,090 Mmcf. Figure 6 shows natural gas reserve figures for Pennsylvania in 1985, and Figure 7 graphically illustrates the differences among production, consumption, and reserves of natural gas for the last 39 years.

NATURAL GAS STORAGE AREAS

Since the early 1920's, Pennsylvania has consumed more natural gas than it has been able to produce. This has led to the necessity of storing natural gas in large quantities in the summer months

Figure 6. *Natural gas reserves in Pennsylvania, 1985.*

	[1]*1985*	[1]*1984*	*% Change*
Total gas	1,979,369	[2]1,904,856	+ 4
Stored recoverable gas	537,090	620,709	- 14

[1]In millions of cubic feet.
[2]Correction.

to at least partially ensure an adequate supply during the winter. Storage reservoirs are typically old depleted gas-producing reservoirs, or bodies of rock whose geological and engineering characteristics would have made them ideal reservoirs had natural gas been emplaced in them. In Pennsylvania all of the major gas-producing horizons have been used at one time or another as storage reservoirs, but the most common reservoirs are Upper Devonian Bradford and Venango Group sandstones and fractured reservoirs in the Oriskany Sandstone. In Figure 8, the locations are shown and the names listed for all active gas storage areas in Pennsylvania in 1985. One storage area, the Meade Run Storage pool in the Guffey field, McKean County, was abandoned in 1985. The owner of the storage area, Kane Gas Light and Heating Company, may reactivate the pool in the future. Recoverable gas in storage totaled 537,090 Mmcf in 1985 as compared with 620,709 Mmcf in 1984.

OIL AND GAS PRICES

As in previous years, following the trend set in mid-1981 after decontrol of oil allowed the market to reach its own level, the price for crude oil in Pennsylvania declined early in 1985. The price, however, eventually leveled out and then climbed slightly during the remainder of the year. Penn Grade crude oil sold for $25.40 per barrel on January 1, 1985, and dropped to $24.40 on January 19. The price rebounded slightly to $25.00 on March 1, and later climbed an additional $1.00 on November 1. Prices remained at $26.00 per barrel to the end of the year. Changes in crude oil pricing in 1985 are shown in Figure 9.

Natural gas prices have been subject to controls under the Natural Gas Policy Act (NGPA) since 1978. The pricing structure of the NGPA raised natural gas prices gradually over the last seven years in order to provide operators with more realistic product prices. The expected cushion to the consumer against the shock of inevitable utility price

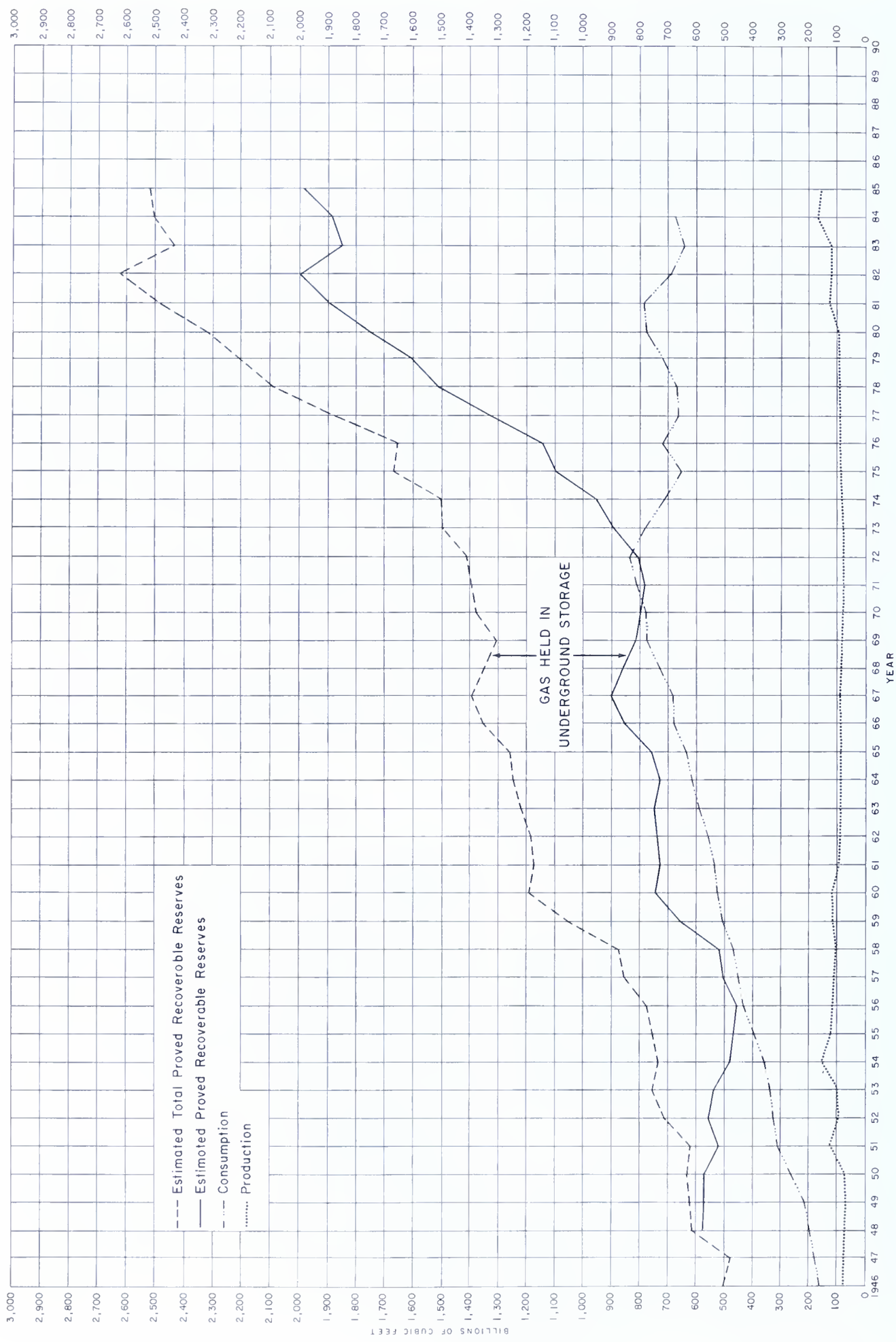


Figure 7. Production, consumption, and reserves of natural gas in Pennsylvania.

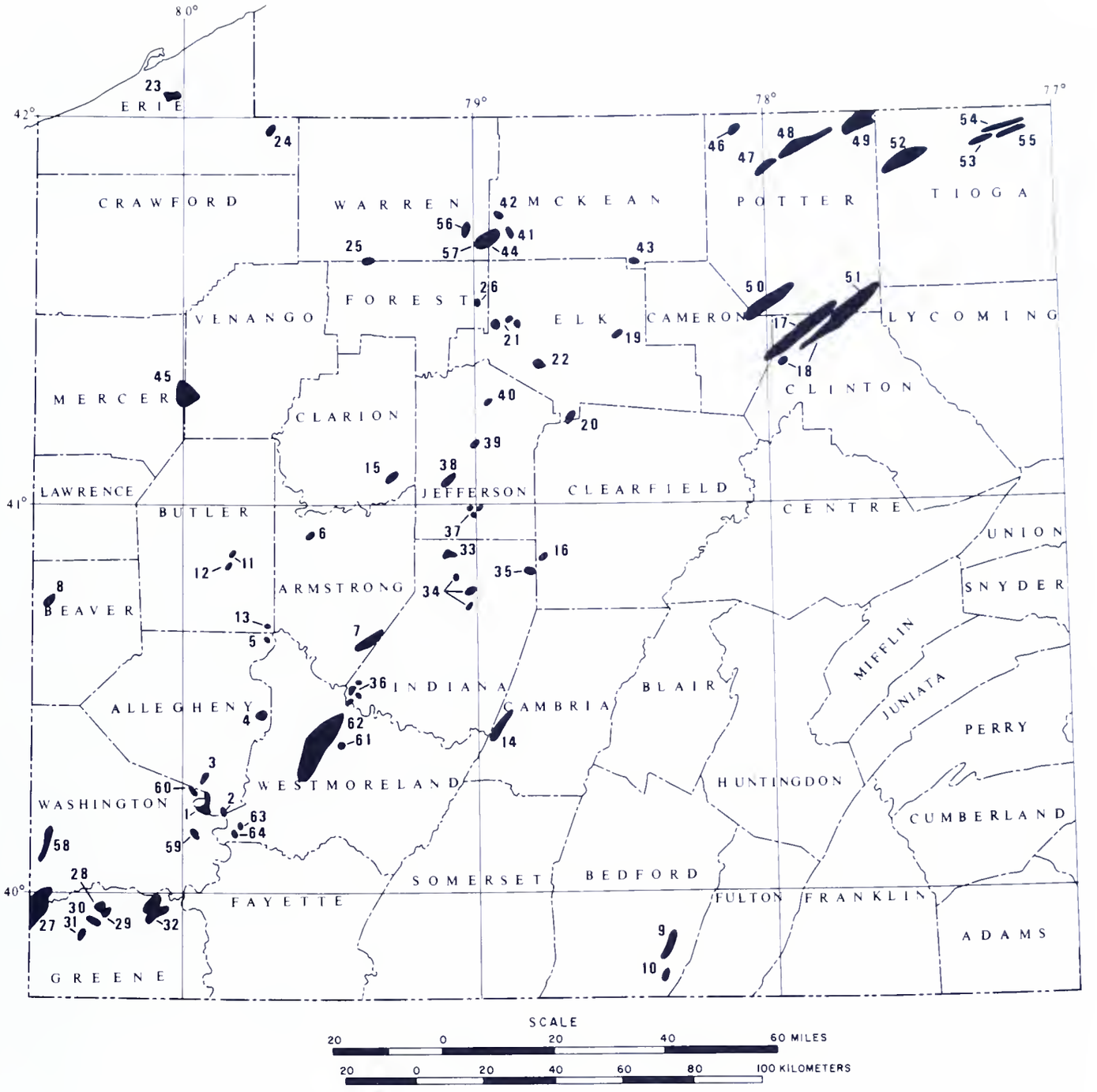


Figure 8. Active natural gas storage areas of Pennsylvania.

NAMES OF ACTIVE GAS STORAGE AREAS IN PENNSYLVANIA

ALLEGHENY COUNTY
1. Bunola
2. Gamble-Hayden
3. Tepe
4. Murrysville (Dice)
5. Smith-Parke

ARMSTRONG COUNTY
6. Fair and Helm
7. South Bend

BEAVER COUNTY
8. Black Hawk

BEDFORD COUNTY
9. Artemas A
10. Artemas B

BUTLER COUNTY
11. Vardy
12. Portman
13. Hughes

CAMBRIA COUNTY
14. Rager Mountain

CLARION COUNTY
15. Truittsburg

CLEARFIELD COUNTY
16. Gourley-Miller

CLINTON COUNTY
17. Leidy
18. Tamarack

ELK COUNTY
19. St. Marys
20. Boone Mountain
21. Owls Nest
22. Belmouth

ERIE COUNTY
23. Summit
24. Corry

NAMES OF ACTIVE GAS STORAGE AREAS IN PENNSYLVANIA *(Continued)*

FOREST COUNTY
25. Queen
26. Duhring

GREENE COUNTY
27. Majorsville-Heard
28. Swarts West
29. Swarts
30. Hunters Cave
31. Holbrook
32. Pratt

INDIANA COUNTY
33. Alabran
34. Kinter
35. Clark
36. Schmidt

JEFFERSON COUNTY
37. Sprankle
38. Galbraith
39. Markle
40. Munderf

McKEAN COUNTY
41. Keelor
42. Swede Hill
43. Wellendorf
44. East Branch "B"

MERCER COUNTY
45. Henderson

POTTER COUNTY
46. Sharon
47. Hebron

POTTER COUNTY (Continued)
48. Ellisburg
49. Harrison
50. Wharton
51. Greenlick

TIOGA COUNTY
52. Sabinsville
53. Palmer
54. Tioga
55. Meeker

WARREN COUNTY
56. Deerlick
57. East Branch "A"

WASHINGTON COUNTY
58. Donegal
59. Colvin
60. Finleyville

WESTMORELAND COUNTY
61. Seanor
62. Oakford
63. Webster
64. Patton

Figure 9. *Crude oil prices in Pennsylvania, 1985.*

Month	*Price per barrel*
January 1, 1985	$25.40
January 19, 1985	24.40
March 1, 1985	25.00
November 1, 1985	26.00

hikes was less effective than expected, however. The lowest prices paid by utilities in Pennsylvania were for old gas, subject to old contracts, produced from pre-NGPA wells. Prices as low as $0.48 per Mcf (thousand cubic feet) are common for gas bought under old contracts in some of the older producing areas of the Commonwealth. Some NGPA pricing categories were deregulated on January 1, 1985. However, the highest price allowed for NGPA-regulated gas was $6.11 per Mcf for Section 107 (High-Cost Gas, in this case the price allowed for gas from "tight formations" such as the Lower Silurian Medina Group and certain Upper Devonian sandstones); the highest price paid was $5.46 per Mcf. The average price for gas was approximately $3.15 per Mcf. Figure 10 shows NGPA price ceilings for natural gas during 1985.

DRILLING AND COMPLETION COSTS

The costs of drilling and completing a well, given below in dollars per foot, vary with the company, drilling depth, method of completion, and geographic area. Costs generally increase yearly due to inflation, but they may decline if the prices for fossil fuels (needed in manufacturing and transporting casing, cement, etc.) decline. Prices typically increase as total depth increases, especially for wells that penetrate deeper, undrilled or untested formations. Dry holes are generally less expensive than producing wells because not as much is done to the hole outside of drilling and, perhaps, logging. Extremely deep wells may be extraordinarily expensive, not only because of increased rig time and increased casing, cementing, and other needs, but also because provisions must be made for potential unforeseen problems. Wells drilled in untested formations and/or unexplored areas may require special testing and completion techniques as well. In Pennsylvania an average well would be drilled about 2,292 feet deep (the average total depth for all wells reported in 1985), probably to the Upper Devonian Venango or Bradford Group. As such, a deep well (Lower Devonian Ridgeley Sandstone or Lower Silurian Medina Group) is generally greater than 5,000 feet deep, and anything deeper than 10,000 feet is considered ultra deep.

Because drilling conditions and company policies vary widely, even within a small geographic area, the drilling costs listed below are only estimates and should not be used as anything more than "ballpark" figures for the industry in 1985.

1. Venango County, shallow oil well in the Venango Group sandstones, about 800 feet deep. Dry hole,* about $15 per foot. Completion, about $38 per foot.
2. Elk County, shallow oil well in the Bradford Group sandstones, about 2,400 feet deep. Dry hole,* about $13 per foot. Completion, about $24 per foot.
3. Indiana-Clearfield County area, shallow gas well in the Bradford Group sandstones, about

Figure 10. *Natural gas price ceilings under federal Natural Gas Policy Act in 1985.*

		Maximum lawful price for deliveries made in:											
		Jan. 1985	*Feb. 1985*	*Mar. 1985*	*Apr. 1985*	*May 1985*	*June 1985*	*July 1985*	*Aug. 1985*	*Sept. 1985*	*Oct. 1985*	*Nov. 1985*	*Dec. 1985*
NGPA Section	*Category of gas*	*cost per million British Thermal Units (in dollars)*											
102	New, Natural Gas Certain OCS Gas	Deregulated January 1, 1985											
103(a)	New, Onshore Production Wells[1]	Deregulated January 1, 1985											
103(b)(1)	New, Onshore Production Wells	2.960	2.966	2.972	2.978	2.991	3.004	3.017	3.024	3.031	3.038	3.047	3.056
106(b)(1)(B)	Alternative Maximum Lawful Price for Certain Intrastate Rollover Gas	1.691	1.695	1.699	1.703	1.711	1.719	1.727	1.731	1.735	1.739	1.744	1.749
107(c)(5)	Gas Produced from Tight Formations	5.920	5.932	5.944	5.956	5.982	6.008	6.034	6.048	6.062	6.076	6.094	6.112
108	Stripper Gas	4.144	4.166	4.188	4.210	4.242	4.274	4.306	4.330	4.354	4.379	4.405	4.432
109	Not Otherwise Covered	2.452	2.457	2.467	2.478	2.489	2.500	2.506	2.512	2.518	2.525	2.532	2.444

[1]Wells deeper than 5,000 feet.

3,600 feet deep. Dry hole,* about $15 per foot. Completion, about $30 per foot.

4. Fayette-Westmoreland County area, shallow gas well in the Bradford Group sandstones, about 4,000 feet deep. Dry hole,* about $23 per foot. Completion, about $40 per foot.
5. Venango County, deep gas well in the Medina Group sandstones, about 5,500 feet deep. Dry hole,* about $20 per foot. Completion, about $36 per foot.
6. Clearfield County, deep gas well in the Ridgeley Sandstone, about 7,600 feet deep. Dry hole,* about $39 per foot. Completion, about $59 per foot.
7. Central Pennsylvania, ultra-deep well to the Cambro-Ordovician rocks of the "Eastern Overthrust Belt," about 13,000 feet deep. Dry hole*, about $250 per foot.

*No completion attempted.

1985 DRILLING AND COMPLETIONS

TOTAL COMPLETIONS

Pennsylvania's oil and gas industry reported a total of 4,657 wells drilled in the Commonwealth in 1985. This was a 70 percent increase in activity from the 1984 figure of 2,598 wells. The total includes 4,641 new wells and 16 old wells drilled deeper.

The total footage drilled in all reported wells increased 71 percent, from 6,238,255 feet in 1984 to 10,647,842 feet in 1985. The average total depth in all new wells drilled was 2,292 feet; this decrease from last year's average of 2,410 is the result of the large increase in the number of shallow oil wells drilled, particularly in Venango County, where an average well is only about 900 feet deep. The 10 most active counties for drilling in 1985 were Venango, Warren, Erie, Forest, Indiana, Clearfield, McKean, Crawford, Jefferson, and Elk, in that order. Wells in these 10 counties accounted for 88 percent of all wells reported in the Commonwealth during the year (see Figure 11).

Figure 11. *New well completions and old wells drilled deeper in Pennsylvania, 1985.*

NEW WELL COMPLETIONS

County	*No. of wells*	*Average total depth (feet)*
Allegheny	3	3,137
Armstrong	101	3,585
Beaver	1	1,427
Bedford	1	14,300
Butler	22	1,959
Cambria	77	3,710
Centre	55	5,138
Clarion	110	2,229
Clearfield	235	3,834
Clinton	2	610
Crawford	157	4,273
Elk	125	2,441
Erie	391	3,329
Fayette	15	3,934
Forest	352	1,231
Greene	12	4,030
Indiana	320	3,772
Jefferson	133	3,316
Lycoming	1	12,885
McKean	213	1,747
Mercer	63	5,078
Mifflin	1	13,500
Potter	3	3,118
Somerset	7	7,691
Tioga	4	6,297
Venango	1,525	1,306
Warren	617	1,410
Washington	4	2,808
Westmoreland	91	3,774
TOTAL	4,641	2,292

OLD WELLS DRILLED DEEPER

County	*No. of wells*	*Average total depth (feet)*
Clarion	5	1,509
Indiana	2	369
Jefferson	7	429
McKean	1	608
Westmoreland	1	618
TOTAL	16	782

OIL COMPLETIONS

The oil industry in Pennsylvania reported 2,471 new oil well completions during 1985. This large number represents a 130 percent increase over the 1984 total of 1,073 wells. Many of these newly reported wells were actually drilled between 1980 and 1984, but were not reported for a number of reasons. Total footage drilled in all oil wells was 2,747,496 feet, a 122 percent increase over a year ago. The average total depth for all oil wells was 1,112 feet, a small decrease. The most active counties for oil well drilling were Venango, Warren, Forest, and McKean, in order of importance.

Drilling in these four counties accounted for 95 percent of all oil wells reported in the Commonwealth in 1984, and the 1,340 wells reported in Venango County alone represents 54 percent of Pennsylvania's total oil wells (Figure 12).

Figure 12. *New oil well completions in Pennsylvania, 1985.*

NEW OIL WELL COMPLETIONS

County	No. of wells	Average initial production (bopd)[1]	Average total depth (feet)
Butler	17	2	1,829
Clarion	18	2	1,320
Crawford	1	0	901
Elk	70	[2]3	2,440
Forest	326	5	1,166
Jefferson	1	0	1,020
McKean	140	8	1,688
Mercer	3	1	889
Potter	1	0	1,476
Venango	1,340	3	931
Warren	552	13	1,168
Washington	2	1	3,065
TOTAL	2,471	5	1,112

[1]bopd = barrels of oil per day.
[2]Based on number of wells reporting initial production.

GAS COMPLETIONS

Pennsylvania's natural gas industry reported 1,894 gas well completions in 1985, including 15 old wells drilled deeper, a 37 percent increase over the 1984 figure of 1,379 wells. The total footage drilled in all gas wells was 7,180,639 feet, a 53 percent increase from 1984. The average depth for new gas wells was 3,815 feet. The most active counties for gas well drilling were Erie, Indiana, Clearfield, Crawford, Jefferson, and Venango, accounting for 70 percent of all gas wells reported during the year. These data are summarized in Figure 13.

COMBINATION OIL AND GAS WELL COMPLETIONS (Not Reported Separately as Oil or Gas)

The Pennsylvania Geological Survey classifies as a combination oil and gas well any well that produces oil as a primary energy-mineral commodity, but which also produces at least 50 Mcfgpd (thousand cubic feet of gas per day). Most oil wells drilled in Pennsylvania produce a little gas, and many produce enough gas to be sold to utilities or pipeline companies. However, if the well produces less than 50 Mcf, regardless of whether or not the gas is sold, it is considered simply as an oil well. Pennsylvania's oil and gas operators reported 77 new combination wells in 1985, a 93 percent increase over the 1984 total of 40 new wells. Total footage for these 77 wells was 200,492 feet, a 129 percent increase from a year ago. The average depth for the wells was 2,604 feet. Of the total, 59 wells, or 77 percent, were

Figure 13. *New gas well completions and old wells drilled deeper in Pennsylvania, 1985.*

NEW GAS WELL COMPLETIONS

County	No. of wells	Average initial open flow (Mcfgpd)[1]	Average total depth (feet)
Allegheny	3	794	3,137
Armstrong	101	702	3,585
Butler	4	33	2,387
Cambria	71	868	3,701
Centre	51	568	5,155
Clarion	91	56	2,423
Clearfield	227	825	3,809
Crawford	140	443	4,452
Elk	9	106	2,310
Erie	385	1,185	3,336
Fayette	14	441	3,934
Forest	16	65	2,283
Greene	11	145	3,915
Indiana	318	769	3,767
Jefferson	131	603	3,336
McKean	2	13	1,801
Mercer	48	437	5,300
Somerset	2	2,111	9,235
Venango	122	1,069	5,481
Warren	42	1,600	4,675
Washington	1	48	2,378
Westmoreland	90	1,064	3,722
TOTAL	1,879	812	3,815

OLD GAS WELLS DRILLED DEEPER

County	No. of wells	Average initial open flow (Mcfgpd)[1]	Average amount deepened (feet)
Clarion	5	175	1,509
Indiana	2	564	369
Jefferson	7	182	429
Westmoreland	1	378	618
TOTAL	15	244	794

[1]Mcfgpd = thousand cubic feet of gas per day.

drilled in McKean, Warren, and Mercer Counties (Figure 14).

Figure 14. *New combination oil and gas well completions in Pennsylvania, 1985.*

County	No. of wells	Average initial production (bopd)[1]	Average initial open flow (Mcfgpd)[2]	Average total depth (feet)
Butler	1	[3]	[3]	2,450
Clarion	1	1	50	900
Crawford	9	2	168	4,116
Elk	1	[3]	77	2,512
Forest	5	4	91	2,071
Greene	1	[3]	773	5,300
McKean	34	2	115	1,821
Mercer	12	[3]	1,362	5,236
Warren	13	40	63	1,322
TOTAL	77	8	311	2,604

[1]bopd = barrels of oil per day.
[2]Mcfgpd = thousand cubic feet of gas per day.
[3]Initial production not reported.

DRY COMPLETIONS

A total of 111 dry holes was reported in Pennsylvania in 1985, including one old well drilled deeper. These wells represent an 83 percent increase in the number of dry holes from 1984, when 60 dry holes were reported. The success rate for all drilling was 98 percent. The total footage for dry holes in Pennsylvania in 1985 was 318,888 feet, a 113 percent increase. The average total depth for all new dry holes was 2,893 feet (Figure 15).

Figure 15. *New dry hole completions and old well drilled deeper but completed dry in Pennsylvania, 1985.*

NEW DRY HOLE COMPLETIONS

County	No. of dry holes	Average total depth (feet)
Beaver	1	1,427
Bedford	1	14,300
Cambria	6	3,817
Centre	4	4,914
Clearfield	8	4,531
Clinton	2	610
Crawford	7	1,376
Erie	6	2,878
Fayette	1	3,938
Forest	5	1,219
Indiana	2	4,540
Jefferson	1	3,002
Lycoming	1	12,885
McKean	6	1,806
Mifflin	1	13,500
Potter	1	6,268
Somerset	5	7,073
Tioga	3	7,210
Venango	38	1,364
Warren	9	1,109
Washington	1	2,723
Westmoreland	1	8,490
TOTAL	110	2,893

OLD WELL DRILLED DEEPER BUT COMPLETED DRY

County	No. of dry holes	Average amount deepened (feet)
McKean	1	608

SERVICE WELLS

Service wells include all oil- and gas-related wells that cannot specifically be considered oil- and gas-producing wells or dry holes. These wells comprise several types: stratigraphic core tests, drilled to collect subsurface information such as formation thickness or the effects of well completion on various rock types; water-supply wells for waterflood projects; fluid-injection wells for secondary and tertiary recovery of oil; liquid-waste disposal wells; and gas storage observation wells. Increases and decreases within this category do not accurately reflect oil and gas drilling trends because, for instance, an oil field operator may drill all of his water-supply wells and fluid-injection wells several years after the oil-producing wells have been completed.

In 1985 industry reported 104 service wells in Pennsylvania. This is a 126 percent increase from the 1984 total of 46 wells. Most of the service wells reported during the year were injection wells for secondary oil recovery projects, but numerous core tests and several storage observation wells were also reported. The total footage drilled in these 104 service wells was 200,327 feet, a 136 percent increase from the footage drilled in 1984. The average total depth for all service wells was 1,926 feet. Drilling in Elk, McKean, and Venango Counties accounted

for 97 percent (all but 3) of the service wells reported in Pennsylvania in 1985 (see Figure 16).

Figure 16. *New service well completions in Pennsylvania, 1985.*

NEW SERVICE WELL COMPLETIONS

County	*No. of wells*	*Average total depth (feet)*
Elk	45	2,468
McKean	31	1,916
Potter	1	1,609
Tioga	1	3,557
Venango	25	947
Warren	1	1,005
TOTAL	104	1,926

DRILLING AND PRODUCTION ACTIVITY
(Classified as Shallow or Deep)

The Oil and Gas Geology Division of the Pennsylvania Geological Survey classifies oil and gas wells as shallow or deep depending on the stratigraphic level penetrated, rather than on actual depth. Wells that penetrate the top of the Tully Limestone or its equivalent (the presently accepted Upper-Middle Devonian boundary) are considered deep. Wells that do not penetrate the Tully horizon are considered shallow. Because the Appalachian basin is wedge shaped, absolute drilling depth is not instrumental in this classification. As such, a Lower Silurian Medina Group well along the shore of Lake Erie in Erie County may be only 2,500 feet deep, whereas an Upper Devonian Lock Haven Formation well in Centre County may be greater than 5,000 feet deep. Yet, the Medina well is considered deep and the Lock Haven well is considered shallow on the basis of the stratigraphic interval penetrated.

Shallow wells account for the greatest number of wells drilled in Pennsylvania; they may produce oil, gas, or both. Deep wells are rarer than shallow wells because of increased cost and risk; they most commonly produce gas, but there are numerous wells in northwestern Pennsylvania that produce oil as well. Very few deep wells produce oil as their main, or sole, energy-mineral commodity. Figure 17 illustrates shallow-well drilling activity in Pennsylvania over the last 35 years, and Figure 18 shows the changes in deep-well drilling activity during the period 1930–85.

There were 3,941 shallow wells reported in Pennsylvania in 1985, an increase of 81 percent from the 2,177 wells reported in 1984. This 1985 total includes 3,821 new wells, 16 old wells deepened, and 104 new service wells. In general, the shallow oil wells were drilled to Venango Group reservoirs and the shallow gas wells were drilled to Bradford Group reservoirs. Subsidiary drilling in other shallow horizons found production in (1) the Lower Mississippian Shenango ("Squaw") and "Murrysville" Formations, and (2) Upper Devonian Ohio Shale, Elk Group, and Lock Haven, Brallier, and Harrell Formations. Shallow oil- and/or gas-well drilling in Venango, Warren, Forest, Indiana, Clearfield, and McKean Counties accounted for 79 percent of all shallow drilling reported in 1985.

Reported deep drilling in Pennsylvania also increased markedly in 1985. During the year 716 deep wells were reported, an increase of 70 percent over the 1984 figure of 421 deep wells. Drilling to the Lower Silurian Medina Group in Erie, Crawford, Venango, Mercer, and Warren Counties dominated deep drilling, accounting for 97 percent of all deep-well activity. Other deep formations drilled during 1985 for natural gas (and oil) production include the (1) Middle Devonian Marcellus Formation and Huntersville Chert; (2) Lower Devonian Bois Blanc Formation, Oriskany Sandstone, Ridgeley Sandstone, and Manlius Formation; (3) Upper Silurian Bass Islands Dolomite and Lockport Dolomite; (4) Upper Ordovician Bald Eagle Formation; and (5) Lower Ordovician through Middle Cambrian carbonate rocks.

Figure 19 shows the statistical breakdown for both shallow and deep wells reported in Pennsylvania in 1985. Figure 20 illustrates shallow- and deep-well drilling in terms of the final reported producing formations.

Shallow production totaled 112,739 Mmcf of gas and 4,687,850 bbl of oil, whereas deep production accounted for 37,802 Mmcf of gas and 163,118 bbl of oil. Figure 21 shows deep gas production during the year by field and pool. The information in Figure 21 is summarized in Figure 22, which shows amounts of gas produced from the various deep reservoirs, both as an annual total and as cumulative totals. Figure 23 illustrates the amount of production, the yearly average unit price, and yearly total values for oil and gas produced in Pennsylvania since 1960.

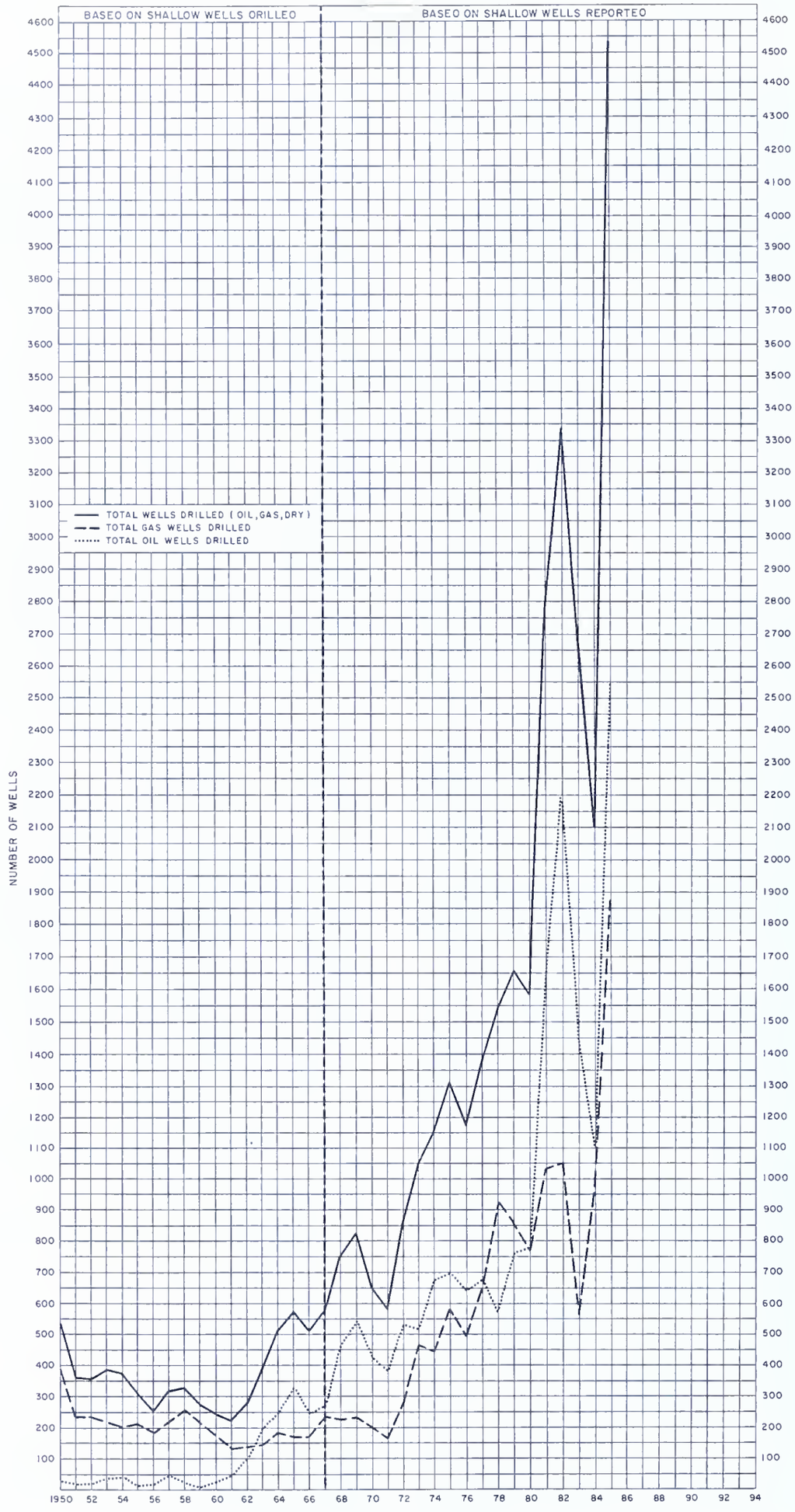


Figure 17. Shallow well activity, 1950–85 (Late Devonian or younger producing horizons; generally less than 4,000 feet).

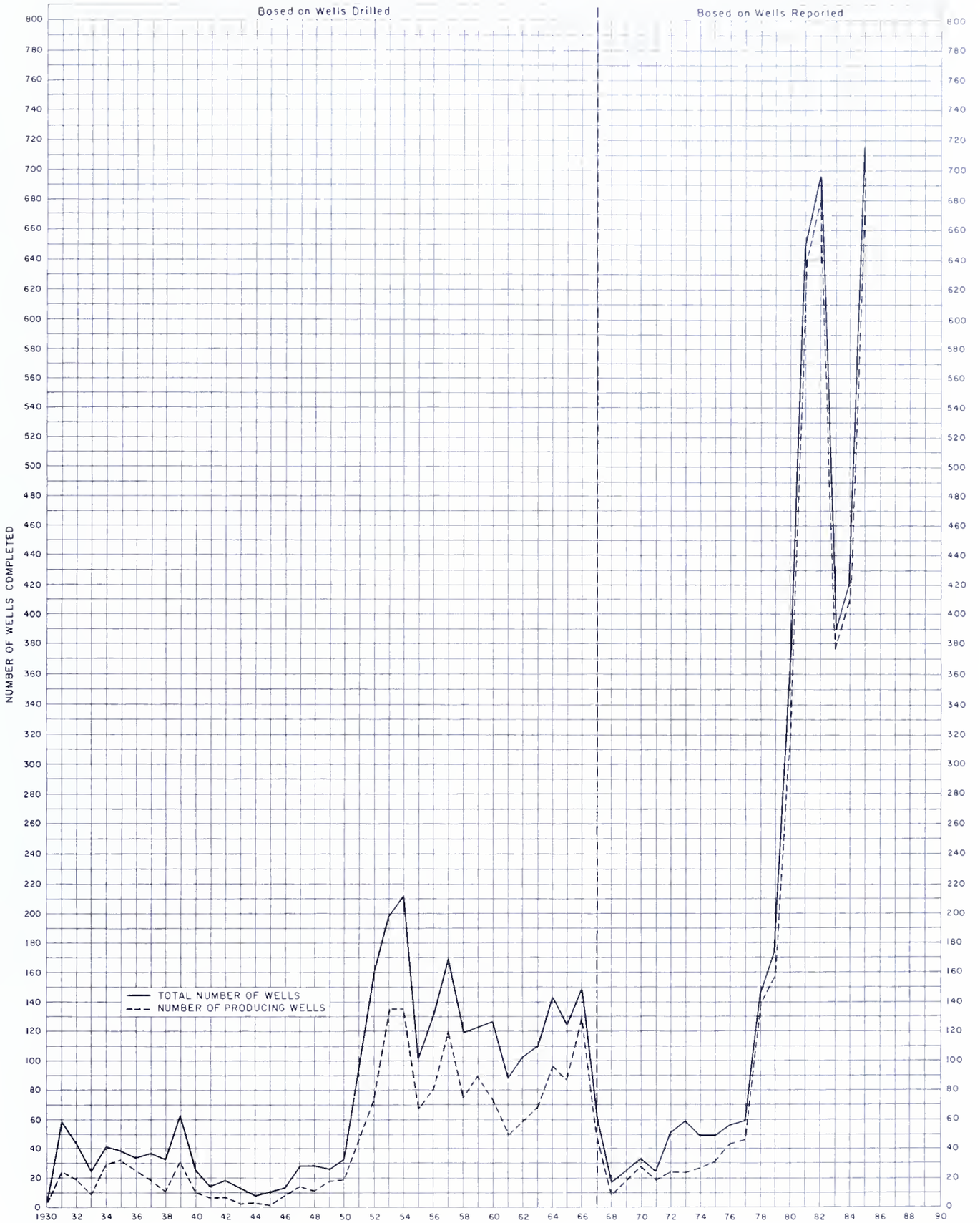


Figure 18. Annual rate of deep formation exploration and development, 1930–85 (Middle Devonian or older producing horizons; generally more than 4,000 feet).

Figure 19. *Drilling and completion of wells reported, 1985 (according to geologic age and depth of producing horizons).*

Shallow—Upper Devonian and younger	
NEW WELLS	
Gas	1,205
Oil	2,471
Oil and gas	56
Dry	89
Total	3,821
DEEPENED WELLS	
Gas	15
Dry	1
Total	16
SERVICE WELLS	104
Total shallow wells	3,941
Deep—Middle Devonian and older	
NEW WELLS	
Gas	674
Oil and gas	21
Dry	21
Total	716
TOTAL ALL WELLS DRILLED	4,657

PENNSYLVANIA DRILLING AND PRODUCTION RECORDS

The drilling depth record for Pennsylvania was set at 21,460 feet by the Amoco Production Company #1 Svetz well in Somerset County in 1974. The well penetrated the top of the Middle Cambrian. This is also the deepest well drilled in the Appalachian basin. The deepest producing depth in Pennsylvania is 13,168 feet in the Texaco U.S.A. #1 Commonwealth of Pennsylvania Tract 289 well, which was completed in Lycoming County in 1985. Production in this well is from the Upper Ordovician Bald Eagle Formation. It is the second well in the prolific Grugan field, which has produced approximately 1.8 billion cubic feet of gas since mid-1983. The record for largest initial production of gas for both Pennsylvania and the Appalachian basin is held by the New York State Natural Gas #1 Finnefrock well in the Leidy field, Clinton County. The well flowed 145,000 Mcfgpd without stimulation from the Lower Devonian Ridgeley Sandstone at 6,339 feet when drilled in 1951. The largest initial production for oil in Pennsylvania is, once again, a basin record. The Jennings Brothers #1 Mathews well in the McDonald-McCurdy field, Allegheny County, reportedly flowed between 12,000 and 21,000 bopd (barrels of oil per day) from the Upper Devonian Venango Group ("Fifth sand") in 1891.

OIL AND GAS EXPLORATORY AND DEVELOPMENT ACTIVITIES

The Pennsylvania Geological Survey, Oil and Gas Geology Division, uses a classification scheme for exploratory and development drilling which is modified from the definitions used by the Committee on Statistics of Drilling of the American Petroleum Institute/American Association of Petroleum Geologists. All wells reported here are the same as those reported under drilling and completions in the previous section of this report. Figure 24 is a summary of exploratory, development, and service drilling activity in Pennsylvania in 1985.

DEVELOPMENT WELLS

A development well is one that is drilled within a proven area of production to a known productive stratigraphic horizon. A producing well in such an area and reservoir is classified as an oil or gas development well. It is considered a dry development well if it is not completed for production.

Development drilling in Pennsylvania during the year increased by 80 percent from 2,466 wells in 1984 to 4,443 wells in 1985. The success rate for all development drilling remained at the 98 percent level set originally in 1982. It should be pointed out that "success" means simply that the well was completed for production without specific reference to long-term economic viability.

EXPLORATORY WELLS

An exploratory well is one that is drilled to (1) find and produce oil or gas in unproven areas; (2) find a new reservoir in an area previously known to have oil and/or gas production in another reservoir; or (3) extend the known limit of a productive oil or gas reservoir. The exploratory categories include new field wildcats, new pool wildcats, deeper pool tests, shallower pool tests, and outpost/extension tests. If the well is drilled as an exploratory test

Figure 20. *Oil and gas well completions in Pennsylvania by shallow and deep producing formations, 1985.*

	Producing formation	Oil wells	Gas wells	Combination oil and gas wells	Total wells
SHALLOW	Commingled	0	1	0	1
	General Pennsylvanian	0	1	0	1
	Commingled	2	15	0	17
	General Mississippian	1	3	1	5
	Commingled	1,637	21	1	1,659
	Venango Group	2	423	0	425
	Commingled	829	611	54	1,494
	Bradford Group	0	24	0	24
	Commingled	0	1	0	1
	Elk Group	0	44	0	44
	Lock Haven Formation	0	7	0	7
	Brallier Formation	0	69	0	69
	Devonian black shales[1]				
DEEP	Commingled	0	1	0	1
	Onondaga Group[2]	0	2	0	2
	Commingled	0	12	0	12
	Ridgeley Sandstone[3]	0	8	0	8
	Bois Blanc-Salina interval	0	3	0	3
	Lockport Dolomite	0	648	21	669
	Medina Group				
	Total	2,471	1,894	77	4,442

[1]Includes wells drilled to deep formations, but completed as shallow producers.
[2]Includes Huntersville Chert and Onondaga limestone complex.
[3]Includes Oriskany Sandstone in northwestern Pennsylvania.

and is not completed for production, it is classified as a dry exploratory hole.

Exploratory drilling in Pennsylvania seemingly increased during the year by 28 percent, from 86 wells reported in 1984 to 110 wells reported in 1985. In reality, exploratory drilling, measured as a percentage of total reported wells, decreased from 3 percent in 1984 to 2 percent in 1985. The success rate for all exploratory wells was 76 percent. This is a decrease from the previous year, when 90 percent of all exploratory wells were successfully completed. Figure 25 shows the breakdown of exploratory drilling by classification. All exploratory successes and the more important exploratory failures of 1985 are illustrated in Figure 26, and these wells are listed in Figures 27 and 28.

HIGHLIGHTS OF 1985 EXPLORATION AND DEVELOPMENT

Drilling for shallow targets (Pennsylvanian, Mississippian, and Upper Devonian) has been the mainstay of the oil and gas industry in Pennsylvania since Drake's historic discovery over 125 years ago. Important early fields were mainly in the Venango Group sandstones (Figure 29) of the western counties, but Bradford Group reservoirs quickly gained prominence in the northern counties. Of the estimated 250,000 wells drilled for oil and gas in Pennsylvania since 1859, probably 95 percent or more were drilled to Venango and Bradford Group targets.

Mississippian reservoirs have been a vital, though relatively minor, part of Pennsylvania's oil and gas fields almost since the first wells were drilled. This trend continued in 1985 as only 17 Mississippian and 5 commingled Mississippian-Upper Devonian producing wells were reported during the year (Figure 20). Most of the Mississippian production in the Commonwealth has been from lowermost Mississippian formations, the Berea Sandstone and "Murrysville sand" of drillers. The sandstones of the Mauch Chunk and Burgoon Formations (Keener and Big Injun sands of drillers) have been

Figure 21. *Gas production from rocks of Middle Devonian or older age in Pennsylvania, 1985 (classified as "deep" production).*

County	*Field*	*Pool*	*Discovery date*	*Cumulative production at end of 1984 (Mcf)*[1]	*Production 1985 (Mcf)*[1]	*Cumulative production at end of 1985 (Mcf)*[1]	*Status of field or pool at end of 1985*[2]	*Reservoir*[3]
Allegheny	Forward	Monongahela	3/25/79	29,000	1,500	30,500	Prod.	MS
Armstrong	Goheenville	Snyderville	10/23/70	314,031	7,843	321,874	Prod.	O
	Roaring Run	Roaring Run Oriskany	12/14/70	7,542,953	121,208	7,664,161	Prod.	O
Bedford	Five Forks	Weimer Run	11/ 1/82	0	0	0	Aban.	O
Cambria	Carrolltown	Burley	1/13/69	369,954	2,561	372,515	Prod. and SI	O
		Pindleton	6/30/69	5,331,003	120,102	5,451,105	Prod. and SI	O
	Pot Ridge		7/ 1/81	0	0	0	SI	O
Cameron	East Emporium		11/18/71	5,358,547	33,834	5,392,381	Prod.	O
Cameron and Elk	Hicks Run		6/ 7/56	4,373,065	1,816	4,374,881	Prod. and SI	O
	Whippoorwill		7/10/61	16,278,123	101,193	16,379,316	Prod. and SI	O
Cameron, Clearfield, Elk, Indiana, and Jefferson	Punxsutawney-Driftwood	*TOTAL*	*9/15/51*	*383,700,354*	*811,560*	*384,511,914*	*Prod., SI, and aban.*	O
		Benezette	1/ 5/53	251,540,496	203,469	251,899,287	Prod., SI, and aban.	O
		Driftwood	9/15/51		155,322			
		Grove Hill	2/18/81	11,717	2	11,719	Prod.	O
		Helvetia	5/11/60	132,148,141	53,124	132,600,908	Prod., SI, and aban.	O
		Rockton	2/25/55		394,137			
	Big Run	Reed-Deemer	12/ 1/53		5,506			
Centre	Black Moshannon		3/31/82	0	0	0	SI	T
	Devils Elbow		12/18/77	2,372,006	203,527	2,575,533	Prod. and SI	T
	Runville		2/28/80	371,034	153,037	524,071	Prod.	T
Clarion	Clarion-Miola	Weaver	2/22/80	0	0	0	SI	O
Clearfield	Boone Mountain	Moshannon	9/15/76	53,464	3,053	56,517	Prod.	O
	Gifford Run		1/13/83	235,903	444,154	680,057	Prod.	O
	Irish Run	Anderson Creek	9/25/75	83,796	16,997	100,793	Prod. and SI	O
	West Decatur		3/30/73	3,764,251	0	3,764,251	SI	O
		Eagle Eye	12/ 6/81	[4]0	0	0	SI	O
Clearfield, Elk, and Jefferson	Penfield	DuBois	1/ 6/60	106,239,162	84,970	106,324,132	Prod. and SI	O
		Sabula	8/26/63	1,373,315	67,434	1,440,749	Prod. and SI	O
Clinton	Grugan		8/12/82	1,034,344	753,687	1,788,031	Prod.	BE
Clinton and Potter	Leidy	*TOTAL*	*1/ 8/50*	*160,416,346*	*2,488*	*160,418,834*	*Prod., gas stor., and SI*	O
		Ole Bull	1/ 9/59	5,616,314	2,488	5,618,802		
Crawford	Athens	*TOTAL*	*9/20/74*	*6,262,825*	*1,492,617*	*7,755,442*	*Prod. and SI*	M
		Brimstone	1/30/79	2,781,068	394,381	3,175,449	Prod. and SI	M

		Dutch Hill	8/31/80	959,359	245,216	1,204,575	Prod.	M
		Lincolnville	8/16/80	229,524	64,948	294,472	Prod.	M
		Potash Run	3/18/79	287,234	34,961	322,195	Prod.	M
		Rome	6/ 9/79	856,147	540,794	1,396,941	Prod.	M
		Steuben	12/22/79	0	0	0	SI	M
	Atlantic	Adamsville	8/ 5/81	0	0	0	SI	M
	Blooming Valley		8/ 5/81	89,944	19,513	109,457	Prod.	M
	Cambridge Springs		1/31/76	519,147	316,990	836,137	Prod. and SI	M
		Cambridge	4/ 6/76	52,197	69,098	121,295	Prod.	M
	Church Run	Bates Hollow	4/ 8/85	0	16,127	16,127	Prod.	M
		Hatchtown	6/27/79	262,150	173,706	435,856	Prod.	M
		Vrooman	12/ 7/79	816,886	490,437	1,307,323	Prod.	M
	Conneaut Lake		8/ 9/82	31,221	40,710	71,931	Prod. and SI	M
	Eaton Corners	Brown Hill	11/15/81	269,726	158,737	428,463	Prod.	M
	Frenchtown		8/17/80	27,055	0	27,055	SI	M
		Guy Mills	8/26/80	0	0	0	SI	M
		Mt. Hope	10/31/80	0	0	0	SI	M
	Geneva	Greenwood	10/31/73	249,316	61,973	311,289	Prod.	M
		Rock Creek	6/27/77	559,096	75,399	634,495	Prod.	M
	Meadville	Tamarack Lake	12/12/80	0	0	0	SI	M
	Papenfuse		11/16/80	181,186	32,780	213,966	Prod. and SI	M
	Randolph	Delamater	9/11/81	1,075	6,232	7,307	Prod. and SI	M
	Richmond Township	Woodcock	7/21/81	29,395	10,300	39,695	Prod.	M
		Zirkle	6/22/81	0	8,323	8,323	Prod. and SI	M
	Rockdale		11/30/79	1,148,200	690,269	1,838,469	Prod., SI, and aban.	M
	South Shenango		8/ 9/79	0	0	0	SI	M
		Espyville	2/ 8/81	0	0	0	SI	M
	Sparta	Eastman Hill	10/30/75	0	17,845	17,845	Prod. and SI	M
	Vernon	Keborts	8/14/81	0	0	0	SI	M
Crawford and Erie	Conneaut	*TOTAL*	*2/11/57*	*53,532,826*	*4,735,529*	*58,268,355*	*Prod., SI, and aban.*	M
		Beaver Creek	9/26/81	18,154	17,343	35,497	Prod.	M
		Blood	12/17/80	112,416	391,561	503,977	Prod.	M
		Bushnell-Lexington	12/31/58	19,195,526	681,170	19,876,696	Prod., SI, and aban.	M
		Carlson	2/23/81	274,334	604,273	878,607	Prod. and SI	M
		Center Bar	11/19/78	5,743	0	5,743	SI	O
		Cranesville	6/17/81	2,630	0	2,630	SI	L
		Forro	1/ 4/58	28,284	5,678	33,962	Prod. and SI	M
		Indian Springs	9/11/57	19,257,025	1,647,186	20,904,211	Prod., SI, and aban.	M
		Kastle	7/14/62	2,551,488	322,177	2,873,665	Prod. and SI	M
		Lundys Lane	11/ 9/61	6,272,570	598,501	6,871,071	Prod., SI, and aban.	M

Figure 21. *(Continued).*

County	*Field*	*Pool*	*Discovery date*	*Cumulative production at end of 1984 (Mcf)*[1]	*Production 1985 (Mcf)*[1]	*Cumulative production at end of 1985 (Mcf)*[1]	*Status of field or pool at end of 1985*[2]	*Reservoir*[3]
Crawford and Erie	Conneaut	Marsh Run	5/20/82	858	5,885	6,743	Prod.	H
		Mud Run	11/ 5/81	45,527	NA	45,527	Prod.	M
		Pageville	10/10/80	471,872	109,966	581,838	Prod. and SI	M
		Pennside	2/ 8/81	53,955	105,916	159,871	Prod.	M
		Pierce	12/31/58	944,742	8,960	953,702	Prod. and SI	M
		Rogers	4/ 8/82	12,274	9,301	21,575	Prod.	O
		Springboro	11/ 7/79	256,653	46,724	303,377	Prod. and SI	M
		Stone Run	10/21/79	391,291	163,851	555,142	Prod. and SI	M
		West Mead	7/ 8/74	42,000	17,037	59,037	Prod.	M
	Cussewago		6/17/81	137,899	135,829	273,728	Prod. and SI	M
Crawford and Mercer	Jamestown		1/18/79	58,462	13,700	72,162	Prod. and SI	M
	Kantz Corners	*TOTAL*	*7/26/77*	*13,393,289*	*2,959,573*	*16,352,862*	*Prod. and SI*	M
		Barco	12/13/80	30,393	3,737	34,130	Prod.	M
		East Fairfield	7/31/80	710,176	149,926	860,102	Prod.	M
		Mt. Pleasant Road	8/30/80	106,314	46,925	153,239	Prod.	M
		Round Knob	11/12/80	647,482	111,052	758,534	Prod.	M
		Shaws Corners	7/15/80	1,210,905	210,704	1,421,609	Prod.	M
Crawford, Mercer, and Venango	Cochranton		11/16/80	3,579,951	760,839	4,340,790	Prod. and SI	M
		Deckard	11/ 4/80	470,547	136,261	606,808	Prod. and SI	M
		McDaniels	3/16/81	686,466	108,720	795,186	Prod.	M
Crawford and Venango	Lake Creek	Wilson Mills	12/22/84	0	9,456	9,456	Prod.	M
Crawford and Warren	County Line		1/31/81	378,917	232,818	611,735	Prod.	M
Elk	Horton	Boot Jack	9/20/73	11,275	8,397	19,672	Prod.	H
Erie	Alder Run		8/24/74	123,708	145,497	269,205	Prod. and SI	M
	Carter Hill		5/14/79	258,690	122,372	381,062	Prod. and SI	M
		Macedonia	4/20/84	0	131,986	131,986	Prod.	H
	Concord	Harbor Ridge	10/ 2/79	6,106	992	7,098	Prod. and SI	M
		Stewart Road	3/10/80	0	0	0	SI	M
	Corry	*TOTAL*	*4/29/47*	*1,453,016*	*137,200*	*1,590,216*	*Prod., SI, aban., and gas stor.*	M
		Beaver Dam	5/20/53	326,924	18,043	344,967	Prod. and SI	M
		Spencer Creek	6/19/70	44,173	52,737	96,910	Prod., SI, and aban.	M
		Tarbell	9/12/80	37,782	NA	37,782	Prod.	M
	Drumlin	Greenley	10/11/83	45,598	583,949	629,547	Prod. and SI	H
		Swails	6/27/80	2,047,646	1,137,884	3,185,530	Prod. and SI	M

	Edinboro		7/28/80	841,071	233,795	1,074,866	Prod. and SI	M
	Edinboro North		1/ 9/80	2,859,188	1,287,978	4,147,166	Prod. and SI	M
		Conneauttee	10/14/82	10,866	15,336	26,202	Prod.	S
	Erie	Bartosik	3/ 7/79	98,060	26,421	124,481	Prod.	O
		Brandy Run	5/28/79	118	0	118	SI	M
		Car Wash	3/ ?/85	0	0	0	SI	O
		Charter Oaks	5/19/77	200,175	132,791	332,966	Prod. and SI	M
		Dunn Valley	1/19/80	21,589	2,612	24,201	Prod.	M
		Fairview	3/12/76	7,118	1,000	8,118	Prod. and SI	M
		Glenwood	8/ 9/77	133,073	21,536	154,609	Prod.	M
		Goddard	8/31/78	143,492	67,135	210,627	Prod. and S1	M
		Lawrence Park	8/30/77	20,338	12,271	32,609	Prod. and SI	M
		McKean	1/19/73	136,679	0	136,679	S1	O
		School	3/26/81	0	6,000	6,000	Prod.	O
		Talcott	7/ 8/79	705,785	514,100	1,219,885	Prod. and SI	M
	Franklin Center		6/16/80	556,818	286,812	843,630	Prod. and SI	M
	LeBoeuf	Waterford	3/21/77	4,546,881	1,520,735	6,067,616	Prod. and SI	M
	Mill Village		7/27/79	4,182,275	1,079,421	5,261,696	Prod. and SI	M
	New Ireland		5/14/78	918,573	380,646	1,299,219	Prod. and SI	M
		Pattison	11/ 9/79	229,072	20,306	249,378	Prod. and SI	M
	North East	Bailey Brook	1/11/80	38,979	367,032	406,011	Prod. and SI	M
		Bull Reservoir	9/17/60	936,288	190,175	1,126,463	Prod. and S1	M
		Burgess	10/17/60	2,916,984	194,937	3,111,921	Prod.	M
		Delhill Corners	6/23/79	8,022	28,660	36,682	Prod. and SI	N
		Half Moon	9/ 6/79	1,437	923	2,360	Prod. and SI	M
		Harborcreek	10/20/77	1,097,284	67,248	1,164,532	Prod. and S1	M
		Hornby	6/10/78	1,594,309	166,099	1,760,408	Prod. and S1	M
		Kuhl	8/14/78	42,698	13,396	56,094	Prod. and S1	M
		Little Hope	12/ 7/78	60,855	[5]34,166	95,021	Prod.	M
		McGuire	2/ 8/80	0	0	0	S1	O
		Orchard Beach	2/18/74	3,011,781	176,936	3,188,717	Prod. and S1	M
		Wattsburg	4/19/80	27	147	174	Prod. and S1	M
	Phillipsville	Dennee	7/14/81	40,078	25,616	65,694	Prod. and S1	M
	Reeds Corners		7/ 9/80	576,431	290,897	867,328	Prod. and S1	M
	Union City	Bentley Run	10/13/80	28,249	5,002	33,251	Prod. and S1	M
		Emmons	12/30/80	64,135	44,962	109,097	Prod. and S1	M
Erie and Warren	Brokenstraw		7/27/78	94,905	30,286	125,191	Prod. and S1	M
		Stroup	7/28/80	23,679	21,117	44,796	Prod. and S1	M
Fayette	Feik		8/ 8/63	22,163	NA	22,163	Prod.	O
	Mill Run		8/17/78	0	0	0	S1	O
	Sandy Creek	Quebec Run	6/ 3/69	31,756	NA	31,756	Prod.	O
	Spruell		10/13/61	8,209,635	114,186	8,323,821	Prod.	O
	Summit	North Summit	3/24/38	21,865,961	53,326	21,919,287	Prod.	O
		South Summit	5/ 9/42	22,965,883	92,455	23,058,338	Prod. and S1	O

Figure 21. *(Continued).*

County	*Field*	*Pool*	*Discovery date*	*Cumulative production at end of 1984 (Mcf)*[1]	*Production 1985 (Mcf)*[1]	*Cumulative production at end of 1985 (Mcf)*[1]	*Status of field or pool at end of 1985*[2]	*Reservoir*[3]
Fayette and Somerset	Ohiopyle[6]		12/28/59	4,622,791	50,028	4,672,819	Prod., SI, and aban.	O
Fayette and Westmoreland	Jacobs Creek	Bailey	12/26/61	2,377,343	23,686	2,401,029	Prod. and SI	O
Forest	Fagundus	Trunkeyville	2/27/85	0	741	741	Prod.	M
Indiana	Cherry Hill	Crichton	1/ 9/63	3,339,910	9,612	3,349,522	Prod.	O
		Hadden	7/11/63		0		SI	O
	Commodore	Wandin	5/12/81	349,165	72,913	422,078	Prod.	O
	Jacksonville	Jacksonville Deep	11/17/56	30,615,972	143,911	30,759,883	Prod.	O
	Lewisville	Serro	5/21/83	70,380	51,531	121,911	Prod.	N
	Living Waters	Uniontown	2/21/80	623,557	136,677	760,234	Prod.	O
	Nolo	Carney Run	4/28/80	0	23,328	23,328	Prod.	O
		Nolo Deep	9/30/56	14,032,881	27,007	14,059,888	Prod., SI, and aban.	O
	Strongstown	Lizowitz	6/19/54	11,905,619	793,148	12,698,767	Prod. and SI	O
		Pineton	12/20/69	13,102,062	529,845	13,631,907	Prod. and SI	O
Jefferson	Frostburg	Elk Run	6/30/65	49,457,571	314,865	49,772,436	Prod. and SI	O
Lawrence	Neshannock Creek		12/14/79	0	0	0	SI	MS
Lycoming	Salladasburg		6/24/76	36,123	0	36,123	SI	O
McKean	Bradford	Cyclone	2/18/74	1,606,976	118,050	1,725,026	Prod.	N
		Minard Run	1/10/75	15,200	2,000	17,200	Prod.	C
	Corydon		9/ 8/72	13,705	NA	13,705	Prod.	O
Mercer	Coolspring	Filer Corners	8/ 8/83	0	0	0	SI	M
	Greenfield		5/17/84	3,298	319,682	322,980	Prod.	M
	Greenville	Thiel	10/28/81	8,079	18,600	26,679	Prod.	M
	Hadley	Derber	9/13/81	154,830	20,764	175,594	Prod.	O
		Perry School	8/30/81	55,368	11,177	66,545	Prod.	M
	Maysville		11/11/77	25,939	0	25,939	SI	M
		West Salem	2/17/81	14,655	4,982	19,637	Prod.	M
	New Hamburg	Good Hope	2/ 2/79	29,613	18,427	48,040	Prod. and SI	M
	Sandy Lake	Carpenter Corners	9/11/82	0	0	0	SI	M
		New Lebanon	1/27/83	0	0	0	SI	M
	Sharon	Sharon Deep	2/26/78	1,062,269	390,956	1,453,225	Prod. and SI	M
	Sheakleyville		5/12/81	504,002	115,952	619,954	Prod.	M
		Osborn	9/ 6/81	337,936	572,141	910,077	Prod.	M
	Stoneboro	Lake	3/ 2/83	0	0	0	SI	M
	Volant	Ligo	2/26/82	28,106	69,175	97,281	Prod. and SI	M
		Pardoe	7/24/81	6,638	579	7,217	Prod. and SI	M
	Wheatland		7/24/63	968,506	128,239	1,096,745	Prod.	M
	Wolf Creek	Black Run	12/29/81	4,392	1,493	5,885	Prod. and SI	M
		Kilgore	10/26/66	1,210,188	168,709	1,378,897	Prod.	L

Mercer and Venango	Utica	French Creek	7/26/81	80,056	98,364	178,420	Prod. and SI	M
Potter	Ulysses		10/ 2/39	4,614,511	19,815	4,667,105	Prod.	O
		Newfield	4/ 2/62		32,779			
Somerset	Bakersville		1/14/79	568,365	16,011	584,376	Prod. and aban.	O
		Shaffer Run	5/ 1/85	0	8,959	8,959	Prod.	O
	Boswell		11/11/58	11,963,628	221,690	12,245,868	Prod. and SI	O
		Edie	10/18/68		1,872			
		Quemahoning	8/ 4/80		49,128			
		Snyder	6/16/60		9,550			
	Brier Knob		7/ 4/80	0	0	0	SI	O
	Heckman Hollow		8/16/77	1,958,143	150,287	2,108,430	Prod.	O
	Kimmel		5/ 9/80	505,578	93,071	598,649	Prod.	O
	Kings Bridge		3/29/81	0	0	0	SI	O
	Paddytown		5/24/85	0	0	0	SI	O
	Rockwood		5/28/79	599,888	64,728	664,616	Prod.	O
	Shade Creek		10/ 3/77	978,447	134,386	1,112,833	Prod.	O
	Shamrock		5/10/79	2,371,422	136,355	2,507,777	Prod.	O
	Shanksville		9/22/73	5,447,043	180,730	5,627,773	Prod.	O
	Somerset East		10/ 7/79	690,452	133,671	824,123	Prod.	O
	Somerset West		1/ 6/78	1,890,319	309,797	2,200,116	Prod.	O
	Texas School	Gideon	1/29/84	0	22,233	22,233	Prod.	O
Tioga	South Wellsboro		2/ 2/82	0	0	0	SI	O
Venango	Barkeyville	Duncan	4/ 5/73	137,152	3,526	140,678	Prod.	M
	Cooperstown	Beatty Run	7/30/82	669,577	2,195,360	2,864,937	Prod., SI, and aban.	M
	Foster-Reno	Coal City	2/16/82	0	0	0	SI	M
		Victory Run	2/ 1/82	0	378	378	Prod. and SI	M
	Franklin-Oak Forest	Galloway	11/12/73	71,378	52,253	123,631	Prod.	M
	McCune Run	Canal	5/25/82	883,116	862,826	1,745,942	Prod.	M
	Pleasantville	Neilltown	3/10/85	0	0	0	SI	M
	Sugar Creek-Niles	Takitezy	7/26/82	36,880	36,756	73,636	Prod., SI, and aban.	M
	Wesley	Irwin	12/ 1/72	357,156	11,403	368,559	Prod. and SI	M
Warren	Bull Hill	Kinley	11/ 7/84	0	0	0	SI	H
	Colorado	Seldom Seen	1/11/84	18,000	7,820	25,820	Prod.	M
	Columbus	Dewey Corners	2/10/81	913,328	613,235	1,526,563	Prod. and SI	M
		Hare Creek	6/26/81	50,155	21,272	71,427	Prod. and SI	M
		Whites Run	10/30/75	181,804	296,809	478,613	Prod. and SI	M
	Enterprise	Kirvan	8/23/84	0	28,513	28,513	Prod.	M
	Goodwill Hill-Grand Valley	Campbell Creek	11/14/81	90,973	144,537	235,510	Prod.	M
	Russell	Fox Hill	12/ 7/83	0	0	0	SI	M
	Sanford	Trimm	2/19/81	177,813	124,273	302,086	Prod.	M
	Selkirk	Three Bridge	2/29/81	104,265	50,231	154,496	Prod. and SI	M
	Spring Creek	West Spring Creek	6/15/84	0	18,901	18,901	Prod.	M
	Stillwater		9/26/79	573,959	128,511	702,470	Prod. and SI	M
		Freehold	8/ 5/80	409,821	108,117	517,938	Prod. and SI	M
		Savko	9/ 5/80	491,074	90,929	582,003	Prod. and SI	M

Figure 21. *(Continued).*

County	*Field*	*Pool*	*Discovery date*	*Cumulative production at end of 1984 (Mcf)*[1]	*Production 1985 (Mcf)*[1]	*Cumulative production at end of 1985 (Mcf)*[1]	*Status of field or pool at end of 1985*[2]	*Reservoir*[3]
Warren	Sugar Grove	Loucks	5/ 3/81	0	0	0	SI	M
		Mikrut	7/21/81	8,409	2,384	10,793	Prod. and SI	M
	Youngsville	Blue Eye	11/ 3/80	0	0	0	SI	M
		Pikes Rocks	5/ 1/81	105,720	57,382	163,102	Prod. and SI	M
Washington	Buffalo	Garrett Hill	6/15/82	29,625	15,805	45,430	Prod.	MS
	Lone Pine	Glyde	9/ 6/61	152,673	3,163	155,836	Prod.	O
Westmoreland	Crabtree	Dry Ridge	8/25/46	6,436,862	66,693	6,503,555	Prod.	O
	Linn Run		4/25/79	306,416	14,402	320,818	Prod.	O
	Lycippus	*TOTAL*	*8/17/49*	*6,792,970*	*36,236*	*6,829,206*	*Prod.*	O
		St. Boniface Chapel	9/13/56	6,053,542	36,236	6,089,778	Prod.	O
	Murrysville	*TOTAL*	*11/ 3/1878*	*778,920*	*0*	*778,920*	*SI*	O
		Duquesne	8/ 8/65	650,803	0	650,803	SI	O
	New Alexandria	Kahl	10/23/62	11,513,055	262,867	11,775,922	Prod. and SI	O
		Keystone	7/10/81	83,517	10,648	94,165	Prod.	O
Westmoreland and Somerset	Johnstown	Baldwin	5/22/60	12,717,287	142,519	13,083,472	Prod.	O
		Beck	5/16/57		223,666			
		Williams	2/14/58	19,347,813	144,292	19,492,105	Prod.	O
	Seven Springs	*TOTAL*	*12/ 5/58*	*8,425,759*	*705,467*	*9,131,226*	*Prod.*	O
		Blair Oriskany	12/ 5/58	6,637,201	19,332	6,661,357	Prod.	O
		Tunnel	3/10/65		4,824			
		Laurel Hill	3/ 5/81	0	90,924	90,924	Prod.	O
		Myersbrook	7/16/82	263,218	94,980	358,198	Prod.	O
		Seven Springs	8/ 3/66	812,917	13,888	826,805	Prod.	O
		Weaver Road	3/15/84	0	481,519	481,519	Prod.	O

[1]Mcf = thousand cubic feet.

[2]Aban. = abandoned; gas stor. = gas storage; prod. = producing; SI = shut-in.

[3]MS = Marcellus Shale; N = Onondaga Formation; O = Oriskany Sandstone; H = Helderberg Group/Bass Islands Dolomite; S = Salina Group; L = Lockport Dolomite; M = Medina Group; T = Tuscarora Formation; BE = Bald Eagle Formation; C = Cambrian formations.

[4]Corrected figure.

[5]Production estimated based on previous year.

[6]Includes Rugg pool.

Figure 22. *Deep gas production in Pennsylvania in 1985 by producing formations.*

Producing formation	*Cumulative production at end of 1984 (Mcf)*[1]	*Production in 1985 (Mcf)*[1]	*Cumulative production at end of 1985 (Mcf)*[1]
Marcellus Formation (deep black shale)	58,625	17,305	75,930
Onondaga Limestone	1,685,378	198,241	1,883,619
Oriskany Sandstone, Huntersville Chert, and Ridgeley Sandstone	[2]1,266,154,358	7,461,701	1,273,616,059
Bass Islands Dolomite and Helderberg Group	57,731	730,217	787,948
Salina Group	10,866	15,336	26,202
Lockport Dolomite	1,212,818	168,709	1,381,527
Medina Group	120,743,474	28,098,541	148,842,015
Tuscarora Sandstone	2,783,700	356,564	3,140,264
Bald Eagle Formation	1,038,473	753,687	1,792,160
Gatesburg Formation and Little Falls Dolomite	205,200	2,000	207,200
TOTAL	[2]1,393,950,623	37,802,301	1,431,752,924

[1]Mcf = thousand cubic feet.
[2]Corrected figure.

Figure 23. *Production, unit price, and total value of crude oil and natural gas produced in Pennsylvania (1960–85).*

	CRUDE OIL			*NATURAL GAS*			
Year	*Production*[1] *(bbl)*	*Average yearly price (dollars/bbl)*	*Total value (dollars)*	*Production*[2] *(Mcf)*[4]	*Average yearly price*[3] *(dollars/Mcf)*[4]	*Total value (dollars)*	*Total oil and gas value (dollars)*
1960	5,942,000	4.57	27,154,940	119,671,000	0.26	31,114,460	58,269,400
1961	5,580,000	4.76	26,560,800	98,318,000	.26	25,562,680	52,123,480
1962	5,238,000	4.63	24,251,940	87,308,000	.26	22,700,080	46,952,020
1963	5,014,000	4.63	23,214,820	92,340,000	.26	24,008,400	47,223,220
1964	5,113,000	4.48	22,906,240	85,322,000	.26	22,183,720	45,089,960
1965	4,859,000	4.20	20,407,800	82,668,000	.26	21,493,680	41,901,480
1966	4,349,000	4.33	18,831,170	91,365,000	.26	23,754,900	42,586,070
1967	4,409,000	4.35	19,179,150	89,966,000	.26	23,391,160	42,570,310
1968	4,160,000	4.35	18,096,000	87,987,000	.28	24,636,360	42,732,360
1969	4,448,000	4.29	19,081,920	79,134,000	.26	20,574,840	39,656,760
1970	4,015,000	4.27	17,144,050	77,535,000	.27	20,934,450	38,078,500
1971	3,798,000	4.47	16,977,060	76,451,000	.30	22,935,300	39,912,360
1972	3,441,000	4.60	15,828,600	73,958,000	.45	33,281,100	49,109,700
1973	3,282,000	5.73	18,805,860	78,514,000	.45	35,331,300	54,137,160
1974	3,399,000	8.43	28,653,570	82,735,000	.50	41,367,500	70,021,070
1975	3,199,000	9.26	29,622,740	84,772,000	.80	67,817,600	97,440,340
1976	2,950,000	11.51	33,954,500	89,974,000	.85	76,477,900	110,432,400
1977	2,659,000	14.22	37,810,980	92,293,000	1.00	92,293,000	130,103,980
1978	2,820,000	14.77	41,651,400	97,763,000	1.25	122,203,750	163,855,150
1979	2,817,000	23.67	66,678,390	96,313,000	1.40	134,838,200	201,516,590
1980	2,940,000	37.42	110,014,800	97,439,000	1.50	146,158,500	256,173,300
1981	3,729,000	36.33	135,474,570	122,454,000	2.00	244,908,000	380,382,570
1982	4,282,000	31.42	134,540,440	121,111,000	2.80	339,110,800	473,651,240
1983	4,491,000	28.18	126,556,380	118,372,000	3.00	355,116,000	481,672,380
1984	4,825,000	27.64	133,363,000	166,342,000	3.25	540,611,500	673,974,500
1985	4,851,000	25.12	121,857,712	150,541,000	3.15	474,204,150	596,061,862

[1]Oil production figure courtesy of the Penn Grade Crude Association.
[2]Gas production figure courtesy of the American Gas Association.
[3]Gas prices estimated only.
[4]Mcf = thousand cubic feet.

Figure 24. *Exploratory and primary development and drilling footages reported, 1985 and 1984.*

Type of well	*1985 Wells*	*1985 Footage*	*1984 Wells*	*1984 Footage*	*% Change in footage*
Exploratory					
Gas	74	359,755	74	343,668	
Oil	9	11,766	2	2,594	
Oil and gas	1	4,270	1	1,180	
Dry	26	152,685	9	59,048	
Total (% successful)	110 (76%)	528,476	86 (90%)	406,490	+ 30
Development					
Gas	1,820	6,820,884	1,305	4,336,391	
Oil	2,462	2,735,730	1,071	1,233,282	
Oil and gas	76	196,222	39	86,215	
Dry	85	166,203	51	90,953	
Total (% successful)	4,443 (98%)	9,919,039	2,466 (98%)	5,746,841	+ 73
Service	104	200,327	46	84,924	+136
TOTAL ALL WELLS DRILLED	4,657 (98%)	10,647,842	2,598 (98%)	6,238,255	+ 71

Figure 25. *Exploratory drilling in Pennsylvania by classification and type of well, 1985.*

Classification and type of well	*No. of wells*	*Footage*
NEW FIELD WILDCATS		
Gas	3	19,238
Dry	18	121,045
Subtotal	21	140,283
NEW POOL WILDCATS		
Gas	3	10,235
Dry	1	1,200
Subtotal	4	11,435
DEEPER POOL TESTS		
Gas	6	37,699
Dry	2	13,236
Subtotal	8	50,935
SHALLOWER POOL TESTS		
Oil	1	901
Gas	2	6,733
Dry	1	4,217
Subtotal	4	11,851
OUTPOST EXTENSIONS		
Oil	8	10,865
Gas	59	278,505
Oil and gas	1	4,270
Dry	5	20,332
Subtotal	73	313,972
GRAND TOTAL EXPLORATORY WELLS	110	528,476

minor contributors to Mississippian production. Even less production has been established, however, in the Shenango Formation, or Squaw sand of drillers. It is a rare enough occurrence when the Shenango produces in the western fields of Venango, Butler, Allegheny, Washington, and Greene Counties. Therefore, a recent discovery of gas production in the Shenango Formation in the main gas belt, the Victory Energy Company #1 Frank Deyarmin, et al., is especially notable because it is in the prolific Cush Cushion field of eastern Indiana County. The Cush Cushion field received notoriety about five years ago because of uncommonly large natural open flows, ranging from 500 to 15,000 Mcfgpd, from the Kane sand of the Upper Devonian Bradford Group. The Deyarmin well flowed 600 Mcfgpd natural production from the Shenango Formation at 1,390 feet. The company then completed the well in the Shenango and four Bradford Group zones for a commingled after-treatment open flow of 1,113 Mcfgpd. The Shenango discovery has been named the Bowdertown pool.

Venango Group reservoirs (Figure 29) exist throughout most of the oil and gas belt in Pennsylvania, but production, particularly of oil, has been almost restricted to the western third of the Allegheny Plateau. In 1985, 1,659 Venango Group producing wells were reported, and the greatest number of these, 1,637 wells, was from the oil fields (Figure 20). Even the great potential for Venango

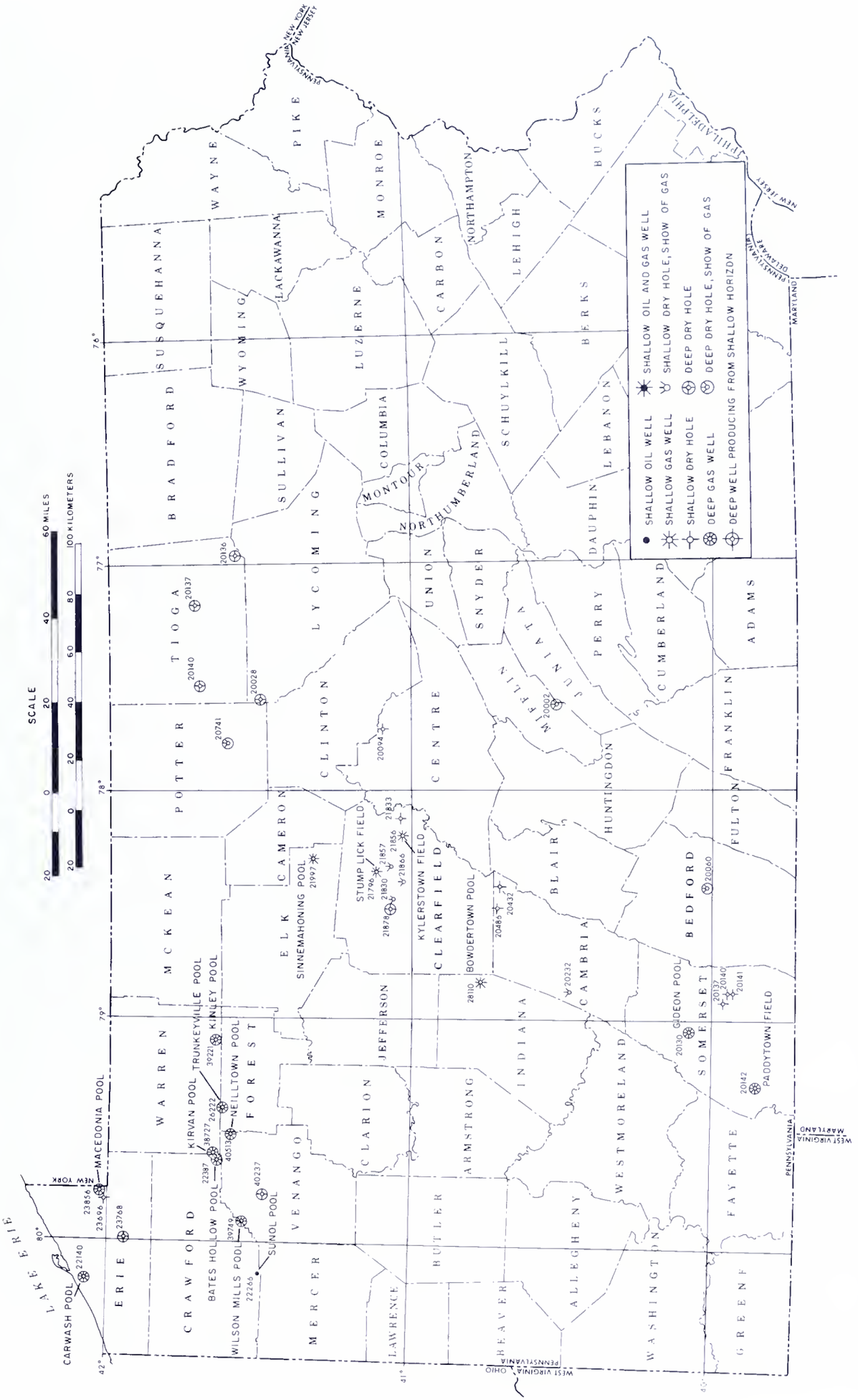


Figure 26. Map of exploratory wells in Pennsylvania reported in 1985.

Figure 27. *Reported new field and new pool discoveries in Pennsylvania, 1985.*

County and permit no.	*Quadrangle*	*Operator well no. and lease*	*Completion date (M-Day-Y)*	*Total depth (feet)*	*Name of formation or group at T.D.*[1]	*Prod. depth (feet)*	*Prod. formation or group*[1]	*Initial daily prod. (in Mcf*[2] *except where noted)*	*Field or pool (and field) name*	*Explor. class*[3]
Clearfield 033-21796	Lecontes Mills	J & J Enterprises, Inc. #1 A. M. Gorman Est.	8-13-84	5,019	Brallier (D)	3,510	Bradford (D)	411	Stump Lick field	NFD
Clearfield 033-21856	Frenchville	DOC-NCC Service Company #1663-4 Frederick Forcey	6-23-84	5,043	Elk (D)	4,641	Bradford and Elk (D)	50	Kylertown field	NFD
Crawford 039-22266	Hadley	RAL Corporation #1 Harold Kline	12- 6-84	901	Venango (D)	734	Venango (D)	?	Sunol pool (Kantz Corners)	SPD
Crawford 039-22387	Titusville North	Haddad and Brooks, Inc. #1 E. Willey, HB-228-2	4- 8-85	5,645	Queenston (O)	5,523	Medina (S)	787	Bates Hollow pool (Church Run)	NPD
Elk 047-21997	Dents Run	CNG Development Company #1 W. A. Thurby	6-20-85	2,830	Bradford (D)	1,654	Bradford (D)	70	Sinnemahoning pool (Punxsutawney-Driftwood)	NPD
Erie 049-22140	Swanville	Donald W. Clark #1 Clark's Car Wash	3- ?-85	1,760	Oriskany (D)	1,760	Oriskany (D)	2,000	Car Wash pool (Erie)	NPD
Erie 049-23856	Wattsburg	U.S. Energy Development Corporation #4 Lantz	4-20-84	2,811	Manlius (D)	2,762	Manlius (D)	6,750	Macedonia pool (Carter Hill)	SPD
Forest 053-26222	West Hickory	Quaker State Oil Refining #1 Watson-Trunkeyville	2-27-85	6,071	Queenston (O)	5,957	Medina (S)	100	Trunkeyville pool (Fagundus)	DPD
Indiana 063-28110	Burnside	Victory Energy Company #1 Frank Deyarmin, et al.	8- 8-84	3,922	Bradford (D)	3,499	Shenango (M)	1,113	Bowdertown pool (Cush Cushion)	SPD
Somerset 111-20130	Somerset	Ashtola Production Company #1 Harold S. Critchfield	1-29-84	9,293	Helderberg (D)	9,090	Ridgeley (D)	1,632	Gideon pool (Texas School)	DPD
Somerset 111-20142	Confluence	Ashtola Production Company #1 David W. Sanner	5-24-85	9,176	Ridgeley (D)	9,028	Ridgeley (D)	2,600	Paddytown field	NFD
Venango 121-39749	Sugar Lake	Mark Resources Corporation #1 C. Hazlett	12-22-84	5,396	Queenston (O)	5,254	Medina (S)	550	Wilson Mills pool (Lake Creek)	DPD
Venango 121-40513	Pleasantville	Quaker State Oil Refining Corporation #1 Allis	3-10-85	6,043	Queenston (O)	5,859	Medina (S)	100	Neilltown pool (Pleasantville)	DPD
Warren 123-38727	Grand Valley	Quaker State Oil Refining Corporation #1 Kirvan	8-23-84	5,486	Queenston (O)	5,372	Medina (S)	1,100	Kirvan pool (Enterprise)	DPD
Warren 123-39221	Sheffield	Meridian Exploration Corporation #1 Kinley Oil Company	11-7-84	5,410	Salina (S)	5,030	Helderberg (D)	44	Kinley pool (Bull Hill)	DPD

[1](M) = Mississippian; (D) = Devonian; (S) = Silurian; (O) = Ordovician.
[2]Mcf = thousand cubic feet.
[3]NFD = new field discovery; NPD = new pool discovery; DPD = deeper pool discovery; SPD = shallower pool discovery.

Figure 28. *Selected exploratory failures reported in Pennsylvania, 1985.*

County and permit no.	*Quadrangle*	*Operator well no. and lease*	*Completion date (M-Day-Y)*	*Total depth (feet)*	*Name of formation or group at T.D.*[1]	*Explor. class*[2]
Bedford 009-20060	Everett West	Atlantic Richfield Company Fred E. Steele #1	5- 8-85	14,300	Gatesburg (C)	NFW
Cambria 021-20232	Vintondale	Fairman Drilling Company #1 James T. McFadden, et al.	12- 8-83	4,217	Elk (D)	SPT
Cambria 021-20432	Blandburg	Felmont Oil Corporation #1 John Hommer	8-28-84	3,563	Bradford (D)	NFW
Cambria 021-20486	Coalport	Felmont Oil Corporation #1 Herbert O'Shall	12-15-84	3,874	Bradford (D)	NFW
Centre 027-20094	Howard	CNG Development Company #1 Commonwealth of Pa. Tract 251	12- 7-84	5,210	Lock Haven (D)	NFW
Clearfield 033-21830	Clearfield	J & J Enterprises, Inc. #1 Donald R. Molinaro #2	8- 7-84	5,020	Elk (D)	NFW
Clearfield 033-21833	Frenchville	J & J Enterprises, Inc. #1 River Hill Coal Company	6-30-84	45	Pottsville (P)	NFW
Clearfield 033-21857	Lecontes Mills	J & J Enterprises, Inc. #1 Richard D. Greene	8-21-84	5,020	Elk (D)	NFW
Clearfield 033-21866	Clearfield	J & J Enterprises, Inc. #1 Francis E. Reed	9- 5-84	5,017	Elk (D)	NFW
Clearfield 033-21878	Elliott Park	Berea Oil and Gas Corporation #2 Commonwealth of Pa. Tract 331	7-29-84	7,369	Tonoloway (S)	NFW
Erie 049-23696	Wattsburg	Arthur F. Fosburgh #1 Arthur F. Fosburgh	8-12-84	1,200	Ohio (D)	NPW
Erie 049-23768	Waterford	N.E.A. Cross Company #2 Cynthia Reemsnyder	3-23-84	7,345	Precambrian (PC)	DPT
Lycoming 081-20028	Slate Run	Pennzoil Company #1 Pa. State Forest Tract 552	1- 9-85	12,885	Reedsville (O)	NFW
Mifflin 087-20002	Belleville	Exxon Corporation #1 Pa. State Forest Tract 377	2- 9-85	13,500	Beekmantown (O)	NFW
Potter 105-20741	Short Run	American President Energy Company #1 State of Pa. Tract 367	8- 2-84	6,268	Helderberg (D)	NFW
Somerset 111-20137	Berlin	Summit Energy Corporation #1 James A. Willkow	3-24-85	6,395	Brallier (D)	NFW
Somerset 111-20140	Berlin	Summit Energy Corporation #1 George W. Ringler	2- 7-85	5,508	Brallier (D)	NFW
Somerset 111-20141	Berlin	Summit Energy Corporation #1 Emma E. Carver	3-27-85	5,441	Brallier (D)	NFW
Tioga 117-20136	Ralston	Ladd Petroleum Corporation #1 Lottie Allen, et al.	8-28-84	5,685	Helderberg (D)	NFW
Tioga 117-20137	Cherry Flat	Union Drilling, Inc. #1 Union-Sun-Biley	8- 7-84	7,410	Helderberg (D)	NFW
Tioga 117-20140	Sabinsville	Wilmoth Interests, Inc. #319 Tioga State Forest	12- 4-84	8,535	McKenzie (S)	NFW
Venango 121-40237	Franklin	Cabot Oil and Gas Corporation #1 Lawrence Huff	2-13-85	5,891	Queenston (O)	DPT

[1](P) = Pennsylvanian; (D) = Devonian; (S) = Silurian; (O) = Ordovician; (C) = Cambrian; (PC) = Precambrian.

[2]NFW = new field wildcat; DPT = deeper pool test; SPT = shallower pool test.

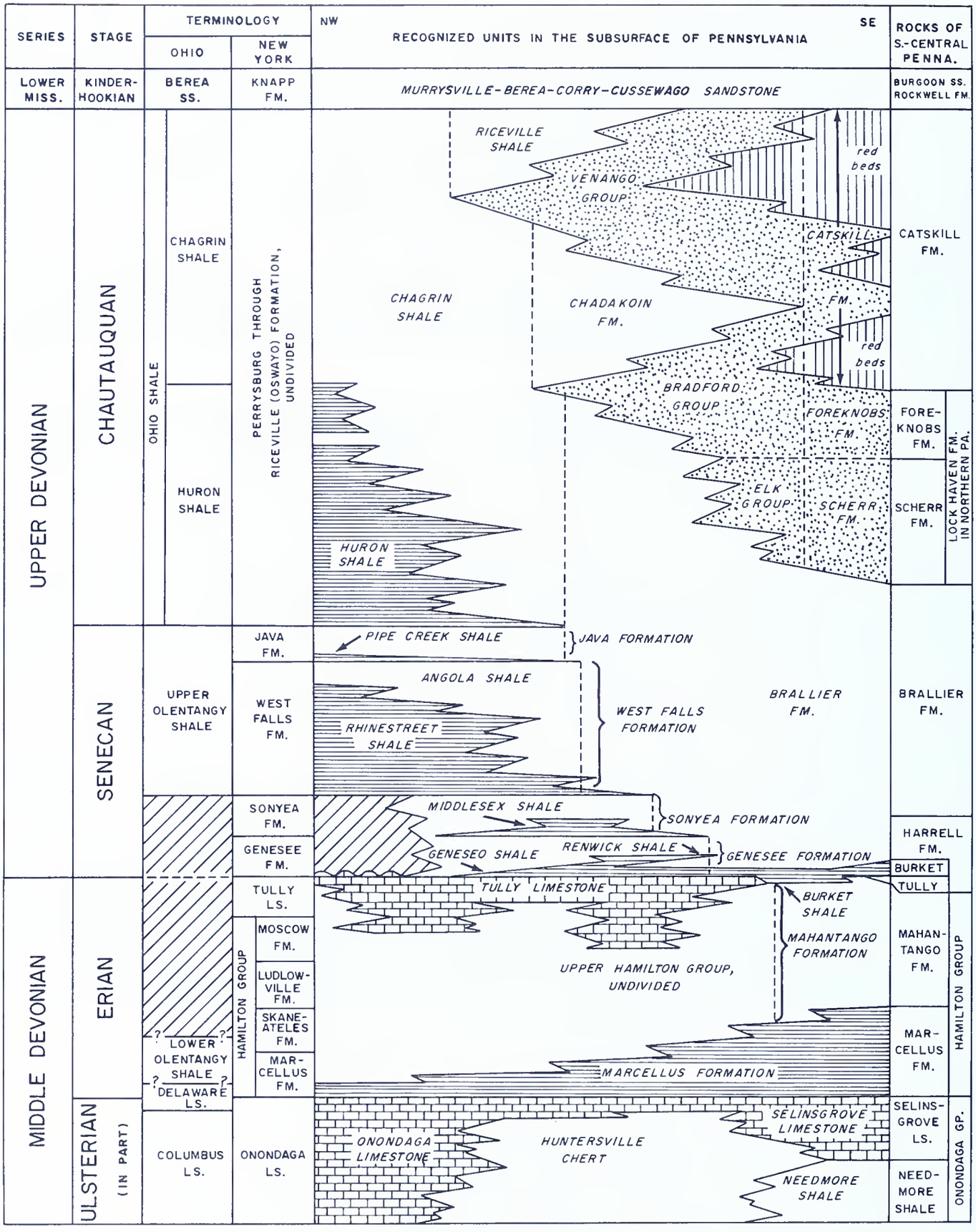


Figure 29. Schematic diagram of Upper and Middle Devonian stratigraphic units from the surface and subsurface of western Pennsylvania.

Group gas production in the central and eastern Plateau counties (e.g., Indiana and Westmoreland Counties) accounted for only 423 gas wells, all commingled with deeper Bradford Group targets. The only Venango Group discovery in 1985 was the Sunol pool, an oil discovery in the Kantz Corners field of Mercer County. Kantz Corners is a Lower Silurian Medina Group field and, until this year, had produced gas exclusively from the deeper formations. The Sunol pool was discovered by the RAL Corporation #1 Harold Kline well in Hadley Township. Production is from the Venango Third sand at 734 feet.

Most of the shallow gas wells (and many of the shallow oil wells) drilled in Pennsylvania in the past 25 years were completed in the Bradford Group reservoirs (Figure 29) of the central and northern Plateau. In 1985, 829 oil wells, 611 gas wells, and 54 combination oil and gas wells were reported (Figure 20). There were also 423 gas wells commingled with Venango Group production and 24 gas wells commingled with Elk Group production. Drilling trends in the Bradford sandstones have tended to be basically developmental or, at most, extensions of known fields. Most operators have traditionally shied away from exploratory drilling, but some sparse wildcatting in the more easterly counties has recently opened some new reservoirs. The only Bradford Group discoveries reported in 1985 were the Stump Lick field in Goshen Township, Clearfield County, and the Sinnemahoning pool in the Punxsutawney-Driftwood field in Benezette Township, Elk County. The Stump Lick field was opened by the J & J Enterprises #1 A. M. Gorman Estate well, which produced from four zones between 2,504 and 3,510 feet. The well had an after-treatment open flow of 411 Mcfgpd and 1,060 psi in 72 hours. The Sinnemahoning pool was discovered in the CNG Development #1 W. A. Thurby well, which had production from four zones ranging in depth from 1,402 to 1,654 feet. The well had an after-treatment open flow of only 70 Mcfgpd.

Besides Venango and Bradford Group sandstones, several other Upper Devonian reservoirs were targeted for drilling in 1985. These included the Elk Group, the Lock Haven and Brallier Formations, and the black, organic-rich shales of the Huron and Rhinestreet Formations (Figure 29).

Drilling to the Elk Group became almost standard practice in many wells in western Pennsylvania during 1985, but only one well was completed exclusively as an Elk Group producer (Figure 20). In most wells that were completed in the Elk Group, production was commingled with Bradford Group production. Pennsylvania's operators had only one new discovery in the Elk Group in 1985, the DOC-NCC Service Company #4 Frederick Forcey, et al., well in Graham Township, Clearfield County. This well was treated in six zones ranging from 2,092 to 4,641 feet with a resultant open flow of only 50 Mcfgpd. Five of the six zones were Bradford Group reservoirs, but the deepest zone represented sandstone reservoirs in the Elk Group. The well discovered the Kylertown field.

The eastern Plateau equivalents of the Venango, Bradford, and Elk Groups are the Catskill and Lock Haven Formations in north-central Pennsylvania, and the Hampshire, Foreknobs, and Scherr Formations in south-central Pennsylvania (Figure 29). Although there had been very little drilling in these rocks in the past, the recent discovery of the Council Run field in Centre County in 1982 has created a flurry of interest. Several companies, particularly Eastern States Exploration Company, have been busy discovering four new fields and pools and expanding the limits of those fields and pools throughout northern Centre County. In 1985 there were 44 new wells reported in the Lock Haven Formation of Centre County. In addition, seven wells were completed in the Brallier Formation. None of these 51 wells were considered to be discovery wells. Three wells drilled by Summit Energy Corporation in Somerset County were interesting in that they were the first wells drilled in that county expressly for the purpose of producing gas from the Foreknobs and Scherr Formations since the mid-1970's. The Summit wells were all completed as dry holes, but they point to the fact that there is still interest in the Upper Devonian sandstones in a county that produces almost exclusively from the Lower Devonian Ridgeley Sandstone.

Reported drilling for natural gas in the "Devonian shales" (Huron and Rhinestreet Formations) in Pennsylvania continued in 1985. The shales have produced natural gas for over 125 years along the lake shore in Erie County, and during the late 1970's and early 1980's, when consumer prices for natural gas soared, there was a resurgence of drilling in the shales for domestic production. The deliverable volume of gas in these wells is generally low, but inasmuch as the gas is used to heat homes, offices,

and churches, the large volumes needed for commercial production are unnecessary. As such, the cost of the wells was generally within the budget of average property owners. This drilling has slowed considerably, however, mostly because of the effects of the new oil and gas law that went into effect in April 1985. The out-of-pocket expenses required under the new law, combined with a probable decrease in natural gas prices in the future, will probably discourage the home owners and small businesses that were the main operators of shale wells from drilling more domestic shale wells in the years to come. Indeed, most of the 69 shale wells reported during 1985 were actually drilled in previous years.

Deep drilling in Pennsylvania was once again dominated by exploratory and development activity in the Lower Silurian reservoirs of northwestern Pennsylvania. As in previous years, however, some interesting and important drilling occurred in other reservoirs and other areas of Pennsylvania.

Only one well was completed as a producer in the Middle Devonian Huntersville Chert, but two others were completed as commingled Huntersville-Ridgeley producers (Figures 29 and 30). There were eight producing wells completed in the Lower Devonian Ridgeley Sandstone in 1985, including one new field and one new pool discovery. The Ashtola Production Company #1 David Sanner, et ux., well in Upper Turkeyfoot Township, Somerset County, discovered the Paddytown field at a depth of 9,028 feet with an after-treatment open flow of 2,600 Mcfgpd. The Ashtola Production Company #1 Harold Critchfield well in Somerset Township, Somerset County, discovered the deeper Gideon pool in the Texas School field at 9,090 feet. This well was completed with an after-treatment open flow of 1,632 Mcfgpd in the Ridgeley Sandstone. The Texas School field was discovered in 1904 with production from the Upper Devonian Hampshire Formation. Other new field and new pool wildcats to the Huntersville-Ridgeley producing horizons were completed as dry holes in Clearfield, Potter, and Tioga Counties. In addition to the Huntersville and Ridgeley wells, there were four wells reported in 1985 that were completed as producers in the Lower Devonian Oriskany Sandstone, the northwestern partial correlative of the Ridgeley Sandstone. One of these four wells, the Donald W. Clark #1 Clark's Car Wash well in Millcreek Township, Erie County, discovered the Car Wash pool in the Erie field. The well was originally completed in 1982 in the Devonian shales at 500 feet. It was drilled deeper to 1,740 feet in 1983, and then to 1,760 feet

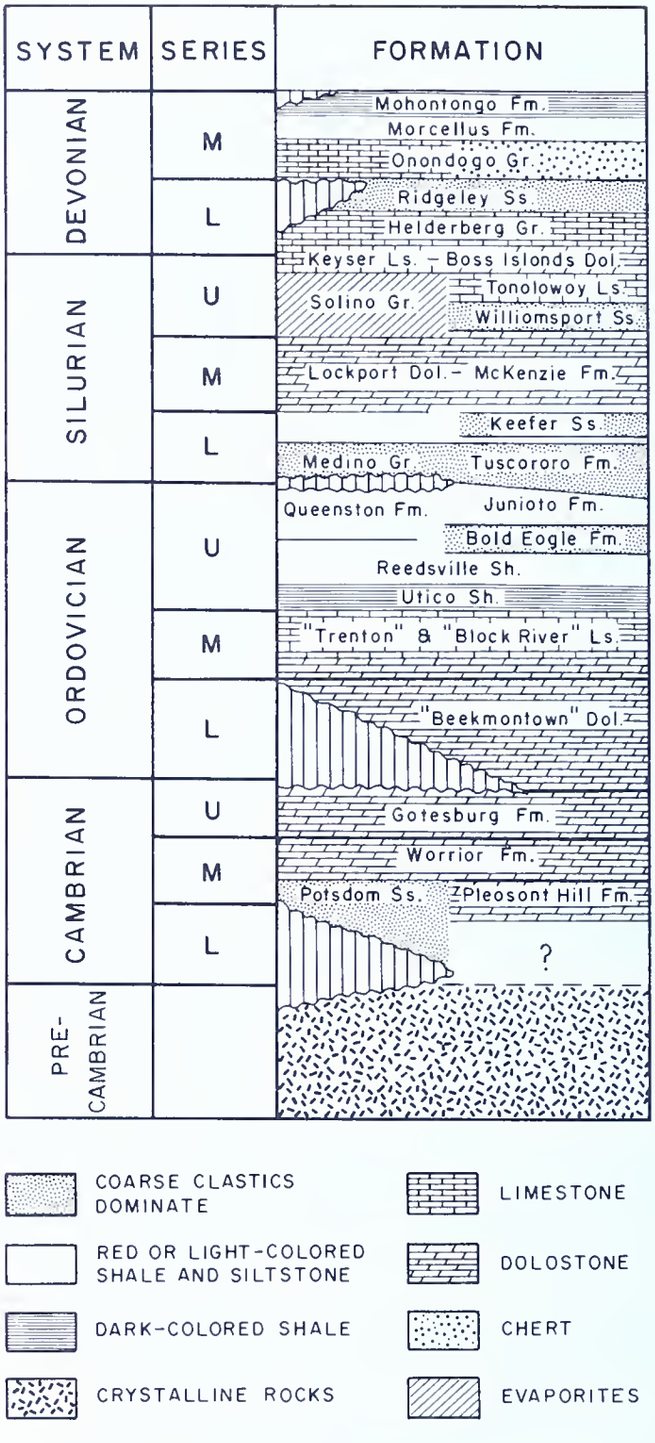


Figure 30. Generalized subsurface diagram of the major deep formations occurring in western Pennsylvania.

in 1985. The well was eventually completed in the Oriskany at 1,760 feet with a natural open flow of 2,000 Mcfgpd.

An interesting discovery reported in 1985 was the Kinley pool in the Bull Hill field, Warren County. The Bull Hill field produces oil and gas from the Upper Devonian Bradford Group, but the Meridian Exploration Corporation #1 Kinley Oil Company

well in Cherry Grove Township, Warren County, is especially notable because it produces gas from the Lower Devonian carbonate rocks of the Helderberg Group (Figure 30). The well was completed at 5,030 feet with an after-treatment open flow of 44 Mcfgpd. Despite the small flow, the company planned to produce the well.

Other developments in the Lower Devonian through Upper Silurian carbonate reservoirs of northwestern Pennsylvania include reported drilling of eight wells in the Bois Blanc-Salina interval of Erie County. Most of these wells were drilled in the established Greenley pool, Swails field, but one, the U.S. Energy Development Corporation #4 Lantz well in Venango Township, discovered the Macedonia pool in the Carter Hill field. The Carter Hill field produces mostly from the Lower Silurian Medina Group. The well tested at 6,750 Mcfgpd after treatment from a zone ranging from 2,680 to 2,762 feet—that is, from an interval encompassing the Lower Devonian Bois Blanc Formation and Manlius Limestone and the Upper Silurian Bass Islands Dolomite (Figure 30). Like the previously discovered Greenley pool, the Macedonia pool may be a southwestern extension of the so-called Bass Islands play that has kept operators active in western New York.

There are only two pools in Pennsylvania in which production comes from the Upper Silurian Lockport Dolomite (Figure 30). These are the Kilgore pool in the Wolf Creek field, Mercer County, and the one-well Cranesville pool in the Conneaut field, Erie County. As such, almost any activity in the Lockport is interesting. In 1985, three wells were completed in the Lockport Dolomite in the Kilgore pool, bringing the total number of wells in the pool to 14. The Kilgore pool is not a prolific gas producer, but it has managed to produce over one billion cubic feet of gas since the first well went into production in the late 1960's.

Drilling in the Lower Silurian Medina Group (Figure 30) accounted for all but 26 deep producing wells in Pennsylvania in 1985 (Figure 20). This continued the trend set in recent years when Medina operators applied for and received higher prices for their gas under Section 107 (High-Cost Gas) of the Natural Gas Policy Act. Also in keeping with recent trends, most of the recent Medina discoveries were deeper pool tests in established shallow fields. These included the Bates Hollow pool in the Church Run field, Crawford County; the Kirvan pool in the Enterprise field, Warren County; the Neilltown pool in the Pleasantville field, Venango County; the Trunkeyville pool in the Fagundus field, Forest County; and the Wilson Mills pool in the Lake Creek field, Venango County (see Figure 27). Open flows in these discovery wells ranged from a low of 100 Mcfgpd in the Quaker State Oil Refining Corporation #1 Allis well (Neilltown pool) to a high of 1,100 Mcfgpd in Quaker State's #1 Kirvan well (Kirvan pool). All of the fields in which these pools were discovered originally produced oil from the Upper Devonian Venango Group.

Tests of the Upper Ordovician through Middle Cambrian formations of Pennsylvania typically result in ultra-deep wells (wells deeper than 10,000 feet). As such, there were three ultra-deep tests reported in 1985. There was, however, one reported Cambrian test which was not an ultra-deep well. The N.E.A. Cross Company #2 Cynthia Reemsnyder well, in the town of Waterford, Erie County, was drilled to the Precambrian at 7,345 feet and tested in the Upper Cambrian Gatesburg Formation (Figure 30). When the test proved unsuccessful, the well was plugged back and completed as a development well in the Lower Silurian Medina Group with an after-treatment open flow of 900 Mcfgpd.

The ultra-deep wells became almost common in Pennsylvania in 1985 as three of the nation's larger companies searched unsuccessfully for natural gas reservoirs in the "Eastern Overthrust Belt." The shallowest of these, in terms of both depth and stratigraphic horizon, was the Pennzoil Company #1 Pennsylvania State Forest Tract 552 in Brown Township, Lycoming County. Pennzoil drilled this well as a distant offset of the Upper Ordovician Bald Eagle production in the Grugan field, Clinton County, that was discovered by Texaco U.S.A. in 1983. The Grugan field produced almost 1.8 billion cubic feet of gas, mostly from one well, between August 1983 and December 1985. Pennzoil was hoping to discover similar production from their well, but there was not even a reported show of gas from the Bald Eagle. The well was drilled to 12,885 feet, in the Upper Ordovician Reedsville Formation, and was plugged and abandoned without being treated or tested.

The Exxon Corporation #1 Pennsylvania State Forest Tract 377 well in Bratton Township, Mifflin County, was spudded in the Bald Eagle Formation and completed as a dry hole in the Lower Ordovician Beekmantown Group at 13,500 feet. This well had shows of gas in the Middle Ordovician Trenton and Black River carbonates at depths ranging from 5,955 to 6,455 feet, but was eventually plugged and abandoned without production or formation treatment. The Atlantic Richfield Company #1 Fred

Steele, et ux., well in Snake Spring Township, Bedford County, was drilled within sight of U.S. Route 30 and the Pennsylvania Turnpike. It was spudded in the Beekmantown Group and, after passing through several faulted zones that repeated various Upper and Middle Cambrian formations, was finally completed as a dry hole in the Upper Cambrian Gatesburg Formation at 15,466 feet. The well had gas shows in the lower slices of the Beekmantown Group and Gatesburg Formation at depths ranging from 12,537 to 13,146 feet, but it was not treated. It was eventually plugged and abandoned without production.

GEOPHYSICAL ACTIVITY IN PENNSYLVANIA

The seismograph is the principal nondrilling exploratory tool used in Pennsylvania for the exploration of oil and gas. The use of seismic tools is advantageous in that it can give approximate to excellent indications of the attitude of rocks (whether they are folded, faulted, tilted, or flat lying) and the depth of potential hydrocarbon reservoirs by measuring the travel time for vibrations generated at the surface to reach the rock. Mechanically generated seismic pulses, especially Vibroseis, and explosive techniques, principally dynamite, are the most widely used in Pennsylvania. Seismic work is typically performed by contracted crews and the intensity of activity is measured in crew-months.

Seismic activity in Pennsylvania increased in 1985, up 33 percent to 12.2 crew-months from the 9.2 crew-months reported in 1984. It is estimated that use of Vibroseis accounted for 3.9 crew-months and dynamite for 8.3 crew-months of seismic activity. Companies involved in seismic activity included major oil companies, large independents, and small independents; they were Columbia Gas, CNG Development, Delta USA, Exxon, Felmont Oil, National Fuel Gas, and Pennzoil. There was also a group shoot for speculative purposes. Surveys were reported in Berks, Butler, Cambria, Centre, Clearfield, Fayette, Indiana, Lackawanna, Lawrence, Lycoming, McKean, Mercer, Montgomery, Somerset, Susquehanna, Tioga, Wayne, and Westmoreland Counties.

ACTIVITIES ON STATE FOREST AND PARK LANDS

Total income from oil and gas activities on Pennsylvania State Forest and Park lands during 1985 amounted to $5,012,055.39. This income came from rentals, including bonuses from lease sales, royalties, gas storage rentals, pipeline and compressor station rentals, and seismic surveys. Royalty payments for the year amounted to $1,282,461.28 for 4,045,413 Mcf of gas produced on State land or from unitized acreage. Rentals for existing exploratory acreage and past leasing programs totaled $2,780,875.38, and gas storage rentals totaled $935,426.48. Other income for seismic surveys and for pipeline and compressor station rentals totaled $13,292.25.

During the year a total of 94,106 acres of State Forest and Park lands was offered for bid for oil and gas exploration in 39 tracts. Of this number, 21 tracts totaling 55,252 acres were successfully bid. However, all of the bids in the December sale, 12,058 acres, will be placed under lease in 1986.

At the end of 1985 a total of 853,306 acres of State Forest and Park lands was under lease for oil and gas exploration and development. Another 100,493 acres was under lease for gas storage located in 10 different gas storage fields.

PROJECTS IN PROGRESS IN 1985, OIL AND GAS GEOLOGY DIVISION

COMBINED REVISION OF FILING AND BASE-MAP PROCEDURES

The initial phase of the well-file and base-map revision project begun by the Oil and Gas Geology Division in 1982 was completed in 1985. Since 1950 the Division had been using a well-identification system in which an arbitrary file number was assigned to each well, based on the 15-minute (1:62,500-scale) topographic quadrangle in which the well was located. Deep wells and shallow wells had separate numbering systems, and it was common to have two wells, distinguished only by the map symbols for deep and shallow wells, marked with the same file number in any given quadrangle. In order to provide the best service to industry, the public, and other state agencies, the Division began changing over both its files and its base maps to the Commonwealth's permit number system and to 7½-minute (1:24,000-scale) topographic quadrangles. By the end of 1984, all of the modern well records had been reassigned to permit-number identifiers and all oil and gas base maps had been changed to the 7½-minute-scale maps. The next step, actually begun in mid-1984, was to provide the public with inexpensive copies of those base

maps. To this end, mylar copies of the topographic quadrangles were obtained, and the well locations and permit numbers were spotted on these. The mylars are now being used to make blueline diazo prints for sale to anyone desiring copies. Details for purchasing base maps can be obtained by contacting the Pennsylvania Geological Survey, Oil and Gas Geology Division, 7th Floor, Highland Building, 121 South Highland Avenue, Pittsburgh, Pennsylvania 15206-3988, telephone 412-665-2155. Figure 31 shows those portions of Pennsylvania for which base-map coverage is available.

In addition, the Division has initiated the process of computerizing its well-record files. To the ultimate end of having all essential well information available on computer, the Division began the laborious, multiyear task of preparing the files for input. In 1985, with the help of five temporary employees, the Division reduced the data from 11,620 well records to a standardized format for eventual batch entry. About half of these wells represent most of the deep wells in the Division's files. Late in 1985, the Pennsylvania Geological Survey ordered for the Division two personal computers having large storage capacity; these should be on line and ready for data entry sometime in 1986.

OIL AND GAS RESERVOIR ROCKS OF PENNSYLVANIA

by Christopher D. Laughrey and Robert M. Harper

Work in progress at the Oil and Gas Geology Division includes a compilation of petrologic and petrophysical data from the various hydrocarbon reservoir rocks of the Commonwealth. The report will supplement the map *Oil and Gas Fields of Pennsylvania* (Pennsylvania Geological Survey Map 3, scale 1:250,000) through discussion and illustration of the various reservoir characteristics of the producing formations in various areas of Pennsylvania. The objectives of this study are to (1) outline the mineralogy, texture, diagenesis, porosity, and permeability characteristics of the principal reservoir rocks in each of the general productive areas of the Commonwealth (as shown on Map 3); (2) explain variations from low-permeability ("tight") to high-permeability ("sweet") zones in seemingly similar reservoir situations; (3) describe the depositional environment and reservoir configuration of gas and oil pools in Pennsylvania; and (4) discuss the potential reservoir and completion problems operators may expect to encounter in different pools in the state.

The study entails the compilation of thin-section and scanning-electron-microscope (SEM) petrographic data, core analyses, X-ray diffraction data, and geophysical information. The completed report should provide operators with a comprehensive guide to geological appraisal of Pennsylvania's reservoir rocks and make available fundamental data for planning profitable exploration and exploitation programs.

OPEN-FILE REPORTS AND OTHER DATA AVAILABLE

The following reports and other data are available on open file at the Pennsylvania Geological Survey, Oil and Gas Geology Division, 7th Floor, Highland Building, 121 South Highland Avenue, Pittsburgh, Pennsylvania 15206-3988.

Open-file report no.	
1	*Surface to Middle Devonian (Onondagan) Stratigraphy, Part I (STOMDES),* 1972, by D. R. Kelley and W. R. Wagner, 15 p., 8 cross sections, vertical scale 1 inch = 100 feet.
2	*Deep Sand Exploration and Gas Developments in Pennsylvania,* 1982, by L. J. Balogh, 2 map sheets, scale 1:250,000 (last updated in 1982).
3	*Salina or Equivalent and Deeper Penetrations of Pennsylvania,* 1973, by D. R. Kelley and L. J. Balogh, 1 map, scale 1:500,000 (last updated in 1979).
4	*Tully and Deeper Formations, Brine Analysis of Pennsylvania,* 1973, by D. R. Kelley and others, 1 chart and map, scale 1:500,000.
5	*Stratigraphic Framework of the Greater Pittsburgh Area, Parts I and II,* 1972, by W. R. Wagner and W. S. Lytle, 20 p., 9 sections in 13 sheets.
6	*Active Gas Storage Areas Map of Pennsylvania,* 1981, by L. J. Balogh, 1 map, scale 1:500,000 (updated as needed).
7	*Subsurface Rock Correlation Diagram, Allegheny Plateau, Pennsylvania,* 1979, by J. A. Harper, 1 sheet.

NORTHWESTERN PENNSYLVANIA

Figure 31. Index maps of available (shaded) 7½-minute oil and gas base maps.

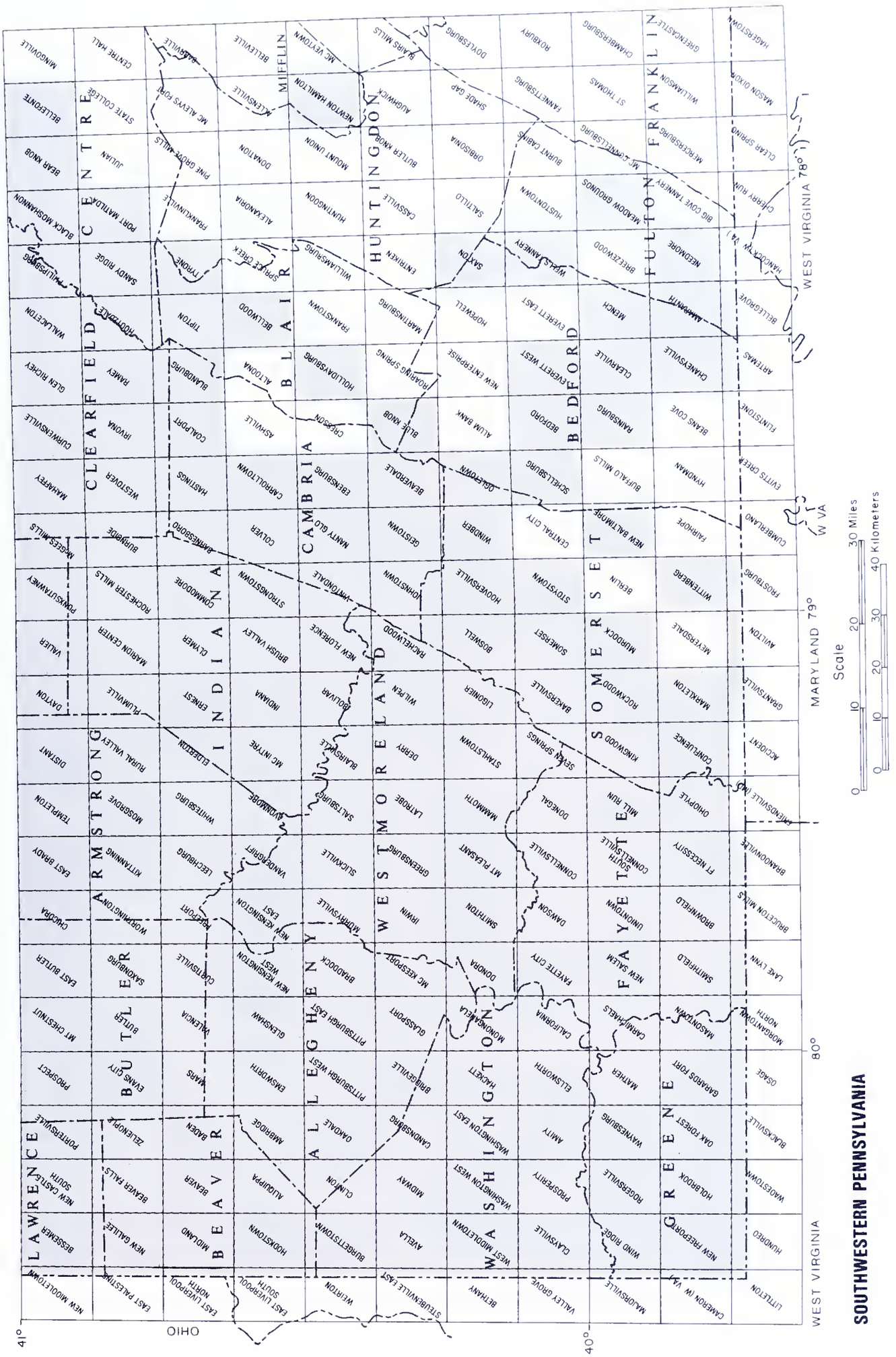


Figure 31. (*Continued*).

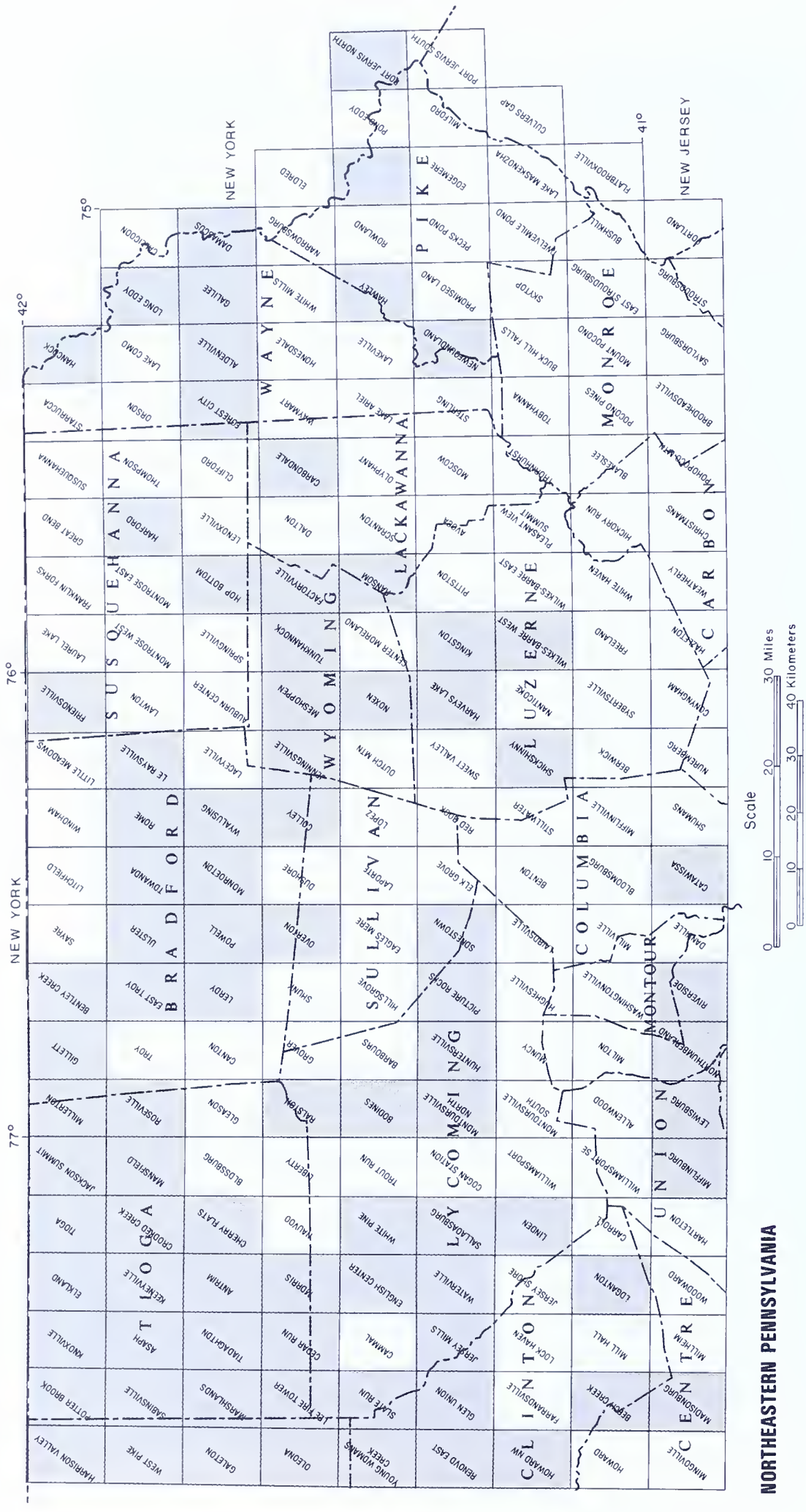


Figure 31. *(Continued).*

SOUTHEASTERN PENNSYLVANIA

Figure 31. *(Continued).*

There are also over 46,000 drillers' records and logs, along with approximately 5,300 mechanical logs on open file at the Pennsylvania Geological Survey's Pittsburgh office. Approximately 44,000 well-data cards, compiled by the U.S. Geological Survey and the Pennsylvania Geological Survey between 1900 and 1970 as the bases of topographic map quadrangle reports, are also on open file. In addition, the Survey has a sample library containing drill cuttings from approximately 1,200 wells, and a core storage library containing cores from 39 wells, including the five wells cored under the U.S. Department of Energy's Eastern Gas Shales Program. All cuttings and cores are available for inspection and study.

SUMMARIZED RECORDS OF REPORTED DEEP WELLS[1] IN 1985

by Christopher D. Laughrey, Cheryl L. Cozart, and Robert M. Harper

The information shown in Figure 33 was compiled mainly from drillers' logs, location plats, and geophysical logs received from the Bureau of Oil and Gas Management, as well as personal communication with oil and gas operators. Well records are filed with the Bureau of Oil and Gas Management by permit numbers. The Oil and Gas Geology Division, Pennsylvania Geological Survey, files the records in order by county, 7½-minute topographic map, and permit number.

[1]Wells that penetrate rocks of Middle Devonian or older age.

Figure 32. *Types of geophysical logs and abbreviations.*

Caliper	CAL
Cement bond log (seismic spectrum)	CBL/SS
Continuous directional	CDR
Compensated neutron log	CNL
Cyberlook	CYBER
Density borehole compensated	DBC
Dual laterolog	DLL
Electromagnetic propagation	EPT
Formation density compensated	FDC
Fracture identification log	FIL
Guard	GD
Gamma ray neutron	GR
High resolution continuous dipmeter	HDT
Induction log	IL
Laserlog	Laser
Litho density	LTD
Merge	Merge
Perforating collar log	PCL
Sibilation	S
Sidewall neutron porosity	SNP
Sonic	SON
Gas detection stratalog	STRATA
Temperature	T
3-D velocity	3-D VEL
Radioactive tracer	Tracer
Variable density log	VDL

Most of the formation tops and total depths recorded in Figure 33 were picked from wire-line logs of many varieties (see Figure 32 for lists of these logs and their abbreviations). The logs received for a particular well are listed in Figure 33 along with the logged interval. Lack of this information indicates that no wire-line logs were received and that formation picks are taken directly from the drillers' logs. The data are listed alphabetically by county and numerically by permit number.

Figure 33. Summarized records of reported deep wells in 1985 that penetrated rocks of Middle Devonian or older age.

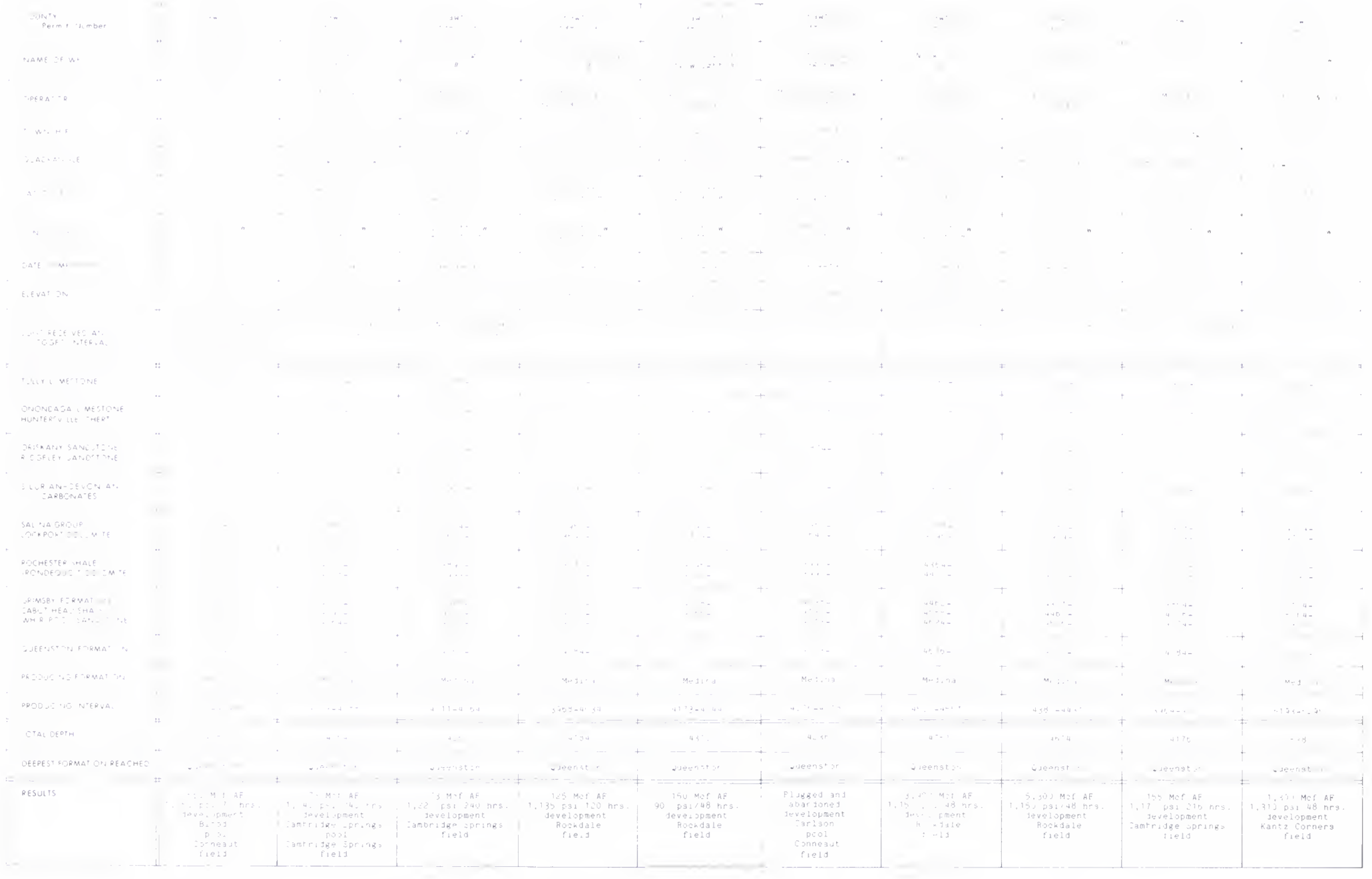
COUNTY Permit Number	Bedford 009-20060	Clearfield 033-21878-P	Clearfield 033-21923	Clearfield 033-22014	Clearfield 033-22015	Clearfield 033-22279	Clearfield 033-22280-P	Clearfield 033-22281	Crawford 039-20958	Crawford 039-20959
NAME OF WELL	Fred E. Steele #1	Commonwealth of PA Tract 331 #2	Commonwealth of PA Tract 324 #4	Commonwealth of PA Tract 324 #5	Commonwealth of PA Tract 324 #6	Commonwealth of PA Tract 325 #1	Commonwealth of PA Tract 325 #2	Commonwealth of PA Tract 324 #7	Griggs #1	Bentley #1
OPERATOR	Atlantic Richfield Company	Berea Oil & Gas Corporation	Adobe Oil & Gas Corporation	Adobe Oil & Gas Corporation	Adobe Oil & Gas Corporation	Adobe Oil & Gas Corporation	Adobe Oil & Gas Corporation	Adobe Oil & Gas Corporation	Park-Ohio Energy, Inc.	Park-Ohio Energy, Inc.
TOWNSHIP	Snake Spring	Pine	Girard	Girard	Girard	Girard	Girard	Girard	North Shenango	North Shenango
QUADRANGLE	Everett West	Elliott Park	The Knobs	The Knobs	The Knobs	The Knobs	The Knobs	The Knobs	Hartstown	Hartstown
LATITUDE	8,600 ft. S 41°02'30"	7,410 ft. S 41°05'00"	400 ft. S 41°10'00"	1,350 ft. S 41°10'00"	1,700 ft. S 41°10'00"	13,310 ft. S 41°12'30"	200 ft. S 41°10'00"	3,160 ft. S 41°10'00"	7,500 ft. S 41°37'30"	13,100 ft. S 41°37'30"
LONGITUDE	1,485 ft. W 78°25'00"	5,030 ft. W 78°30'00"	8,150 ft. W 78°17'30"	6,450 ft. W 78°17'30"	10,250 ft. W 78°17'30"	1,950 ft. W 78°17'30"	2,360 ft. W 78°17'30"	750 ft. W 78°20'00"	4,800 ft. W 80°27'30"	9,000 ft. W 80°25'00"
DATE COMPLETED	5-8-85	7-29-84	9-17-84	11-10-84	11-23-84	6-13-85	7-13-85	6-28-85	2-27-81	1-30-81
ELEVATION	1162 GR	2205 GR	2094 GR	2120 GR	2156 GR	2061 GR	2041 GR	2165 GR	1090 GR	1190 GR
LOGS RECEIVED AND LOGGED INTERVALS	FIL: 3936-15450 GR/LTD/CNL: 150-3940 OBC/SON: 1600-3933 OIL: 608-3935	OBC/CNL: 1214-7349 OIL: 1214-7350 T: 1214-7356 LTO: 1214-7320							GR/CNL: 0-4248 GO: 0-4248 PCL: 3950-4241	GR/OBC: 0-4680
TULLY LIMESTONE	Beekmantown 0-1276 Gatesburg 1276-3460	6310-	6574-	6606-	6651-	6577-	6558-	6695-	2412-	2842-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	Warrior 3460-4810 Pleasant Hill 4810- Waynesboro 5380-	7066- 7076-	7371-	7420-	7436-	7366-	7345-	7476-	2559-	2990-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	Fault 5635 Warrior 5635-6088	7124-	7414-	7444-	7478-	7407-	7389-	7518-		3192-
SILURIAN-DEVONIAN CARBONATES	Fault 6088 Warrior 6088-7145	7132-	7424-	7452-	7488-		7398-		2768-	3206-
SALINA GROUP LOCKPORT DOLOMITE	Fault 7145 Warrior 7145-7330								2890- 3620-	3300- 4040-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	Fault 7330 Beekmantown 7330-								3890- 3940-	4310- 4366-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	Gatesburg 9200- Warrior 11160- Fault 11610								3985- 4127- 4162-	4415- 4514- 4596-
QUEENSTON FORMATION	Gatesburg 11610- Fault 12770								4173-	4608-
PRODUCING FORMATION	Beekmantown 12770? Gatesburg 14300-		Ridgeley	Ridgeley	Ridgeley	Ridgeley		Ridgeley	Medina	Medina
PRODUCING INTERVAL			7416-7421	7447-7451	7482-7487	7410-7414		7520-7526	4072-4169	4190-4222
TOTAL DEPTH	15,466	7369	7579	7618	7656	7540	7478	7668	4270	4432
DEEPEST FORMATION REACHED	Gatesburg	Tonoloway	Ridgeley	Helderberg	Helderberg	Ridgeley	Helderberg	Ridgeley	Queenston	Queenston
RESULTS	Plugged and abandoned New field wildcat Driller's log tops starting at 11,610	Plugged and abandoned New field wildcat	3,620 Mcf AF 3,720 psi/76 hrs. development Gifford Run field	4,650 Mcf AF 3,725 psi/72 hrs. development Gifford Run field	10,550 Mcf AF 3,860 psi/72 hrs. development Gifford Run field	2,300 Mcf AF 2,860 psi/119 hrs. development Gifford Run field	Plugged and abandoned development Gifford Run field	7,800 Mcf AF 3,190 psi/86 hrs. development Gifford Run field	35 Mcf Nat. 1,250 psi/720 hrs. extension Espyville pool South Shenango field	25 Mcf Nat. 1,180 psi/720 hrs. development Espyville pool South Shenango field

Figure 33. *(Continued).*

COUNTY Permit Number	Crawford 039-20960	Crawford 039-21630	Crawford 039-21682	Crawford 039-21683	Crawford 039-21697	Crawford 039-21698	Crawford 039-21826	Crawford 039-21848	Crawford 039-21849	Crawford 039-21961
NAME OF WELL	Simons #1	Ronald L. King #1	Frank Schropp #1	Alec Styborski #1	Ray Zilhaver #1	Charles Hopt #1	Robert Simcheck #1	Racop #1	Ross Zilhaver #1	John Andrews #1
OPERATOR	Park-Ohio Energy, Inc.	Kaltsas Oil Company, Inc.	Kaltsas Oil Company, Inc.	Kaltsas Oil Company, Inc.	Kaltsas Oil Company, Inc.	Kaltsas Oil Company, Inc.	Meridian Exploration #632	Kaltsas Oil Company, Inc.	Kaltsas Oil Company, Inc.	Meridian Exploration #698
TOWNSHIP	South Shenango	Rockdale	Rockdale	Rockdale	Rockdale	Rockdale	Rockdale	Rockdale	Cambridge	Cambridge
QUADRANGLE	Hartstown	Cambridge Springs	Cambridge Springs	Millers Station	Cambridge Springs	Cambridge Springs	Cambridge Springs	Millers Station	Cambridge Springs	Cambridge Springs
LATITUDE	14,850 ft. S 41°35'00"	10,220 ft. S 41°52'30"	14,600 ft. S 41°52'30"	14,850 ft. S 41°52'30"	3,350 ft. S 41°50'00"	2,200 ft. S 41°50'00"	2,800 ft. S 41°47'30"	11,300 ft. S 41°52'30"	1,420 ft. S 41°50'00"	4,400 ft. S 41°47'30"
LONGITUDE	550 ft. W 80°25'00"	200 ft. W 80°00'00"	225 ft. W 80°00'00"	9,780 ft. W 79°57'30"	3,000 ft. W 80°00'00"	400 ft. W 80°00'00"	5,850 ft. W 80°00'00"	8,300 ft. W 79°57'30"	4,000 ft. W 80°00'00"	6,800 ft. W 80°00'00"
DATE COMPLETED	2-18-81	7-28-84	4-10-85	8-2-84	10-15-84	4-29-85	8-21-82	11-30-82	12-31-82	7-10-83
ELEVATION	1290 GR	1250 GR	1305 GR	1310 GR	1391 GR	1432 GR	1320 GR	1190 GR	1398 GR	1385 GR
LOGS RECEIVED AND LOGGED INTERVALS	GD/GR: 400-4680 PCL: 4350-4621						GR/OBC: 2450-4466 DIL/LL: 2450-4467			GR/OBC: 2500-4520
TULLY LIMESTONE	2842-	2530-	2613-	2614-	2696-	2756-	2696-	2484-	2690-	2760-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2990-	2750-	2838-	2832-	2912-	2972-	2907-	2706-	2912-	2970-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3192-					3160-				
SILURIAN-DEVONIAN CARBONATES	3209-				3104-	3180-	3097-			3157-
SALINA GROUP LOCKPORT DOLOMITE	3302- 4310-	3300- 3544-	3326- 3636-	3088- 3684-	3170- 3716-	3510- 3738-	3168- 3850-	2904- 3500-	3450- 3726-	3226- 3918-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4310- 4366-	3880- 3936-	3944- 4022-	3928- 4008-	4028- 4104-	4062- 4148-	4070- 4142-	3788- 3885-	4026- 4112-	4156- 4212-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	4416- 4514- 4592-	3972- 4096- 4137-	4046- 4184- 4224-	4032- 4160- 4210-	4163- 4262- 4304-	4186- 4305- 4350-	4184- 4310- 4350-	3900- 4040- 4084-	4137- 4270- 4314-	4252- 4370- 4416-
QUEENSTON FORMATION	4607-	4148-	4236-	4222-	4316-	4362-	4364-	4100-	4326-	4430-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4454-4604	4024-4145	4102-4234	4110-4218	4178-4314	4240-4360	4216-4302	3900-4084	4186-4324	4289-4341
TOTAL DEPTH	4688	4250	4315	4300	4403	4415	4468	4164	4420	4533
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	225 Mcf AF 1,360 psi/72 hrs. extension South Shenango field	600 Mcf AF 1,110 psi/72 hrs. development Rockdale field	400 Mcf AF 1,050 psi/72 hrs. development Rockdale field	500 Mcf AF 1,075 psi/72 hrs. development Rockdale field	600 Mcf AF 1,100 psi/48 hrs. extension Rockdale field	350 Mcf AF 1,160 psi/72 hrs. development Rockdale field	103 Mcf AF 1,047 psi/168 hrs. development Cambridge Springs pool Cambridge Springs field	IP not reported development Rockdale field	600 Mcf AF 1,250 psi/96 hrs. development Rockdale field	119 Mcf AF 1,078 psi/168 hrs. development Cambridge Springs pool Cambridge Springs field

COUNTY Permit Number	Crawford 039-22087	Crawford 039-22129	Crawford 039-22138	Crawford 039-22140	Crawford 039-22141	Crawford 039-22142	Crawford 039-22143	Crawford 039-22168	Crawford 039-22172	Crawford 039-22184
NAME OF WELL	Mary Bauer #1	George & Marjorie Agnew #2	Miriam Rushe #1	Clark #1	Paul E. Gehr (Shellito #2)	Frances P. Gillette (Farley #2)	Kuhn Unit #2	W. L. Ounn #7	William Oavis #1	Overmoyer #3
OPERATOR	Meridian Exploration #741	Mitchell Energy Corporation	Cabot Oil & Gas Corporation	N.E.A. Cross Company	Mitchell Energy Corporation	Mitchell Energy Corporation	Meridian Exploration #758	Cabot Oil & Gas Corporation	Mitchell Energy Corporation	Cosimo & Geraldine Occhipinti
TOWNSHIP	Rockdale	Summit	Fairfield	Rockdale	Summit	Summit	Rockdale	Fairfield	Summit	Conneaut
QUADRANGLE	Cambridge Springs	Harmonsburg	New Lebanon	Millers Station	Harmonsburg	Harmonsburg	Millers Station	Cochranton	Harmonsburg	Linesville
LATITUOE	7,050 ft. S 41°47'30"	6,625 ft. S 41°42'30"	4,200 ft. S 41°30'00"	1,100 ft. S 41°50'00"	8,175 ft. S 41°40'00"	13,430 ft. S 41°42'30"	2,100 ft. S 41°50'00"	6,300 ft. S 41°32'30"	5,525 ft. S 41°42'30"	3,960 ft. S 41°42'30"
LONGITUDE	1,750 ft. W 80°00'00"	9,650 ft. W 80°17'30"	3,500 ft. W 80°05'00"	4,250 ft. W 79°57'30"	7,800 ft. W 80°20'00"	5,025 ft. W 80°20'00"	3,650 ft. W 79°57'30"	1,220 ft. W 80°05'00"	4,590 ft. W 80°17'30"	9,260 ft. W 80°22'30"
DATE COMPLETED	1-30-84	7-25-84	7-22-84	5-22-84	1-31-85	2-9-85	7-16-84	6-30-84	4-15-84	5-17-84
ELEVATION	1310 GR	1147 GR	1462 GR	1240 GR	1149 GR	1138 GR	1220 GR	1277 GR	1265 GR	1202 GR
LOGS RECEIVED AND LOGGEO INTERVALS	OBC/CNL: 2489-4478 OIL/LL: 450-4478	GR/OBC: 2200-4242 SON: 406-4235 GR: 2300-4313	GR/OBC: 0-5294 PCL: 5100-5424	GR/OBC: 2249-4252	GR/PCL: 2300-4303	SDN: 422-4246	GR/FOC: 0-4165 OIL: 2500-4165	GR/OBC: 0-5049	GR: 2200-4341	OBC/CNL: 2200-4204 GR/GO: 2300-4199 STRATA: 2700-4140 3-O VEL: 3250-4174
TULLY LIMESTONE	2750-	2488-	3558-	2548-	2574-	2487-	2566-	3304-	2620-	2420-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2960-	2652-	3752-	2770-	2732-	2647-	2786-	3502-	2782-	2474-
ORISKANY SANDSTONE RIDGELEY SANOSTONE		2852-	3922-			2844-		3673-	2978-	2776-
SILURIAN-DEVONIAN CARBONATES	3138-	2863-	3936-	2957-	2926-	2854-	2975-	3692-	3031-	2742-
SALINA GROUP LOCKPORT OOLOMITE	3206- 3856-	2944- 3640-	4038- 4777-	3018- 3624-	3016- 3728-	2932- 3598-	3036- 3664-	3788- 4518-	3107- 3752-	2874- 3604-
ROCHESTER SHALE IRONDEQUOIT OOLOMITE	4131- 4188-	3905- 3958-	5084- 5148-	3860- 3942-	3990- 4040-	3850- 3948-	3882- 3960-	4800- 4862-	4028- 4080-	3826- 3876-
GRIMSBY FORMATION CABOT HEAO SHALE WHIRLPOOL SANOSTONE	4228- 4354- 4397-	3998- 4114- 4174-	5207-	3978- 4094- 4144-	4084- 4180- 4260-	3991- 4086- 4162-	3997- 4120-	4917-	4122- 4225- 4294-	3916- 4006- 4093-
QUEENSTON FORMATION	4411-	4182-		4156-	4272-	4170-			4304-	4100-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4269-4344	4024-4176	5253-5356	4022-4077	4112-4265	4021-4167	4050-4074	4929-5028	4151-4320	3969-4047
TOTAL OEPTH	4497	4244	5480	4290	4344	4260	4285	5159	4380	4211
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	125 Mcf AF 1,150 psi/168 hrs. development Zirkle pool Richmond Township field	191 Mcf AF 1,080 psi/143 hrs. development Carlson pool Conneaut field	650 Mcf AF 1,260 psi/48 hrs. development Kantz Corners field	1,600 Mcf AF 1,150 psi/48 hrs. development Rockdale field	92 Mcf AF 610 psi/48 hrs. development Carlson pool Conneaut field	81 Mcf AF 620 psi/48 hrs. development Carlson pool Conneaut field	381 Mcf AF 1,089 psi/216 hrs. development Rockdale field	275 Mcf AF 1,225 psi/48 hrs. development Kantz Corners field	87.5 Mcf AF 1,222 psi/186 hrs. development Carlson pool Conneaut field	600 Mcf AF 1,300 psi/72 hrs. development Blood pool Conneaut field

Figure 33. *(Continued)*



COUNTY Permit Number	Crawford 039-22209	Crawford 039-22214	Crawford 039-22221	Crawford 039-22225	Crawford 039-22226	Crawford 039-22227	Crawford 039-22228	Crawford 039-22229	Crawford 039-22230	Crawford 039-22235
NAME OF WELL	J. Weddell #2	Lampman #2	Borovic #2	Barry Greeley #1	Edward Klingman #1	M. Eugene Smith #1	Leo Bemis #1	St. John Unit #1	William Hartley #1	J. Zilhaver #2
OPERATOR	Meridian Exploration #761	Cosimo & Geraldine Dechipinti	Cosimo & Geraldine Dechipinti	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	Meridian Exploration #744	Mitchell Energy Corporation	Meridian Exploration #755
TOWNSHIP	Rockdale	Conneaut	Conneaut	Bloomfield	Bloomfield	Bloomfield	Bloomfield	Rockdale	Summerhill	Rockdale
QUADRANGLE	Millers Station	Linesville	Linesville	Lake Canadohta	Lake Canadohta	Millers Station	Millers Station	Millers Station	Harmonsburg	Millers Station
LATITUDE	4,450 ft. S 41°50'00"	5,850 ft. S 41°42'30"	3,250 ft. S 41°42'30"	3,050 ft. S 41°50'00"	6,700 ft. S 41°50'00"	2,800 ft. S 41°47'30"	10,900 ft. S 41°50'00"	8,600 ft. S 41°47'30"	10,375 ft. S 41°45'00"	7,000 ft. S 41°50'00"
LONGITUDE	7,350 ft. W 79°55'00"	11,250 ft. W 80°22'30"	6,800 ft. W 80°22'30"	6,700 ft. W 79°50'00"	8,900 ft. W 79°50'00"	2,850 ft. W 79°52'30"	8,650 ft. W 79°52'30"	2,700 ft. W 79°57'30"	5,950 ft. W 80°20'00"	2,400 ft. W 79°57'30"
DATE COMPLETED	9-17-84	6-19-84	7-6-84	6-17-84	6-17-84	6-24-84	6-18-84	10-7-84	8-17-84	10-14-84
ELEVATION	1390 GR	1168 GR	1225 GR	1620 GR	1450 GR	1620 GR	1520 GR	1265 GR	1060 GR	1270 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/OBC: 452-4510 IL/GR: 452-3071	OBC/CNL: 2140-4182 GR/GO: 2150-4173 STRATA: 2530-4110 CBL: 3185-4141	GR: 2200-4217	GR/OBC: 2954-4758	GR/OBC: 2880-4678		GR/OBC: 2900-4681	OBC/CNL: 2480-4505 OLL: 32-4504	GR: 2000-3998	GR/OBC: 436-4382 OIL/GR: 2300-4382
TULLY LIMESTONE	2776-	2404-	2456-	3064-	2956-	3148-	2972-	2754-	2321-	2644-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2998-	2552-	2614-	3293-	3188-	3376-	3200-	2972-	2482-	2864-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3186-	2756-	2817-							
SILURIAN-DEVONIAN CARBONATES	3189-	2762-	2838-	3476-	3374-		3396-	3150-	2680-	3048-
SALINA GROUP LOCKPORT DOLOMITE	3254- 3849-	2840- 3540-	2912- 3616-	3534- 4132-	3426- 4030-		3448- 4044-	3212- 3840-	2760- 3432-	3110- 3708-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4119- 4178-	3800- 3850-	3830- 3930-	4406- 4463-	4303- 4362-	4558-	4311- 4370-	4112- 4173-	3708- 3760-	3970- 4052-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	4202- 4342- 4380-	3892- 3982- 4050-	3972- 4064- 4129-	4487- 4630- 4666-	4408- 4514- 4563-	4604- 4722- 4768-	4418- 4532- 4574-	4214- 4336- 4378-	3801- 3949- 3977-	4089- 4219- 4258-
QUEENSTON FORMATION	4397-	4070-	4154-	4676-	4572-	4780-	4586-	4396-	3984-	4270-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4263-4307	3937-3978	4004-4059	4545-4595	4459-4490	4684-4721	4468-4530	4251-4275	3826-3981	4143-4193
TOTAL DEPTH	4514	4150	4218	4794	4680	4894	4684	4528	4020	4386
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	77 Mcf AF 1,160 psi/144 hrs. development Rockdale field	650 Mcf AF 1,350 psi/72 hrs. development Blood pool Conneaut field	650 Mcf AF 1,250 psi/72 hrs. development Indian Springs pool Conneaut field	3,700 Mcf AF 1,200 psi/48 hrs. extension Dutch Hill pool Athens field	150 Mcf AF 900 psi/48 hrs. development Dutch Hill pool Athens field	150 Mcf AF 900 psi/48 hrs. extension Brown Hill pool Eaton Corners field	150 Mcf AF 900 psi/48 hrs. development Rockdale field	125 Mcf AF 1,050 psi/168 hrs. development Brown Hill pool Eaton Corners field	573 Mcf AF 1,150 psi/573 hrs. development Indian Springs pool Conneaut field	730 Mcf AF 1,220 psi/168 hrs. development Rockdale field

Figure 33. *(Continued).*

COUNTY Permit Number	Crawford 039-22237	Crawford 039-22243	Crawford 039-22244	Crawford 039-22246	Crawford 039-22248	Crawford 039-22253	Crawford 039-22255	Crawford 039-22256	Crawford 039-22261	Crawford 039-22262
NAME OF WELL	Ballog Farms #1	Cullinan #1	Donald M. Henry #1	L. Batyko #2	G. Stevens #2	J. Greenawalt #5	William D. Davis #2	Mary Payer #1	J. Mumford #3	J. Poduszlo #3
OPERATOR	N.E.A. Cross Company	Meridian Exploration #160	Meridian Exploration #745	Mitchell Energy Corporation	Mitchell Energy Corporation	Commodore Energy Company	Mitchell Energy Corporation	N.E.A. Cross Company	Cabot Oil & Gas Company	Cabot Oil & Gas Company
TOWNSHIP	Rockdale	Cambridge	Rockdale	Summerhill	Summerhill	Conneaut	Summit	Sparta	Fairfield	Fairfield
QUADRANGLE	Millers Station	Cambridge Springs	Millers Station	Harmonsburg	Harmonsburg	Linesville	Harmonsburg	Spartansburg	Cochranton	Cochranton
LATITUDE	13,100 ft. S 41°52'30"	14,650 ft. S 41°50'00"	7,400 ft. S 41°45'00"	3,630 ft. S 41°42'30"	4,450 ft. S 41°42'30"	3,975 ft. S 41°42'30"	6,920 ft. S 41°42'30"	9,100 ft. S 41°52'30"	5,620 ft. S 41°32'30"	9,780 ft. S 41°32'30"
LONGITUDE	4,050 ft. W 79°55'00"	8,600 ft. W 80°00'00"	8,300 ft. W 79°57'30"	7,410 ft. W 80°17'30"	9,200 ft. W 80°17'30"	1,800 ft. W 80°25'00"	3,670 ft. W 80°17'30"	10,050 ft. W 79°37'30"	10,320 ft. W 80°05'00"	9,410 ft. W 80°02'30"
DATE COMPLETED	9-10-84	7-14-84	9-30-84	1-10-85	12-20-84	11-18-84	8-27-84	6-18-84	9-14-84	10-29-84
ELEVATION	1470 GR	1210 GR	1350 GR	1316 GR	1260 GR	1100 GR	1229 GR	1650 GR	1126 GR	1491 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/DBC: 2800-4534		GR/DBC/CNL: 2500-4562 DIL/DLL: 1920-4560	GR: 2300-4402	GR/DBC: 4038-4394			GR/DBC: 3157-4934	GR/DBC: 0-4994	GR/DBC: 0-5393
TULLY LIMESTONE	2822-	2534-	2802-	2644-		2230-	2598-	3220-	3124-	3546-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3052-	2746-	3014-	2810-		2456-	2762-	3474-	3312-	3746-
ORISKANY SANDSTONE RIDGELEY SANDSTONE							2961-	3636-	3488-	3914-
SILURIAN-DEVONIAN CARBONATES	3240-	2936-	3194-	3004-		2796-	2968-	3648-	3502-	3932-
SALINA GROUP LOCKPORT DOLOMITE	3300- 3890-	3586-	3262- 3930-	3085- 3787-		2960- 3428-	3660- 3718-	3692- 4286-	3594- 4320-	4032- 4758-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4162- 4220-	3975-	4178- 4236-	4054- 4107-	4050-		4008- 4064-	4558- 4622-	4604- 4662-	5070- 5132-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	4257- 4382- 4420-	4010- 4142- 4183-	4277- 4400- 4446-	4148- 4244- 4320-	4092- 4187- 4262-	3810- 3905- 3969-	4106- 4203- 4281-	4672- 4792- 4826-	4713- 4867- 4897-	5188- 5334- 5370-
QUEENSTON FORMATION	4434-	4198-	4459-	4332-	4274-	3994-	4291-	4842-	4910-	
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4303-4373	4073-4134	4334-4394	4175-4330	4118-4270	3871-3901	4142-4287	4725-4784	4714-4855	5193-5305
TOTAL DEPTH	4539	4309	4581	4440	4400	4108	4340	4955	5006	5397
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	150 Mcf AF 900 psi/48 hrs. development Rockdale field	242 Mcf AF 1,170 psi/240 hrs. development Cambridge pool Cambridge Springs field	125 Mcf AF 1,100 psi/168 hrs. development Zirkle pool Richmond Township field	16 Mcf AF 950 psi/54 hrs. development Indian Springs pool Conneaut field	28 Mcf AF 2 bopd AF 540 psi/50 hrs. development Indian Springs pool Conneaut field	700 Mcf AF 1,000 psi/72 hrs. development Blood pool Conneaut field	370 Mcf AF 1,175 psi/288 hrs. development Carlson pool Conneaut field	300 Mcf AF 700 psi/48 hrs. extension Eastman Hill pool Sparta field	600 Mcf AF 1,220 psi/48 hrs. development Kantz Corners field	425 Mcf AF 1,090 psi/48 hrs. development Kantz Corners field

COUNTY Permit Number	Crawford 039-22263	Crawford 039-22265	Crawford 039-22269	Crawford 039-22270	Crawford 039-22271	Crawford 039-22272	Crawford 039-22275	Crawford 039-22276	Crawford 039-22277	Crawford 039-22278
NAME OF WELL	J. Poduszlo #4	O. Hulley #2	M. Peterson #1	R. Burchill #1	J. Harold Autenreith #1	L. Rynd #4	H. Hart #2	A. Hart #9	R. Vanco #1	R. Vanco #2
OPERATOR	Cabot Oil & Gas Company	Cabot Oil & Gas Company	Cabot Oil & Gas Company	Cabot Oil & Gas Company	N.E.A. Cross Company	Cabot Oil & Gas Company	Cabot Oil & Gas Company	Cabot Oil & Gas Company	Meridian Exploration #189	Meridian Exploration #190
TOWNSHIP	Fairfield	Fairfield	Fairfield	Fairfield	Bloomfield	Wayne	Fairfield	Fairfield	Venango	Venango
QUADRANGLE	Cochranton	Cochranton	New Lebanon	Geneva	Lake Canadohta	New Lebanon	Geneva	Cochranton	Cambridge Springs	Cambridge Springs
LATITUDE	12,000 ft. S 41°32'30"	13,100 ft. S 41°32'30"	1,470 ft. S 41°30'00"	6,980 ft. S 41°32'30"	9,200 ft. S 41°52'30"	1,380 ft. S 41°30'00"	3,700 ft. S 41°32'30"	4,620 ft. S 41°32'30"	13,550 ft. S 41°52'30"	150 ft. S 41°50'00"
LONGITUDE	7,170 ft. W 80°02'30"	5,000 ft. W 80°05'00"	7,200 ft. W 80°02'30"	5,810 ft. W 80°07'30"	11,250 ft. W 79°50'00"	8,900 ft. W 80°00'00"	1,250 ft. W 80°07'30"	8,520 ft. W 80°05'00"	8,000 ft. W 80°05'00"	8,050 ft. W 80°05'00"
DATE COMPLETED	10-15-84	9-25-84	10-5-84	12-6-84	9-22-84	9-30-84	1-7-85	10-24-84	10-7-84	10-13-84
ELEVATION	1268 GR	1398 GR	1279 GR	1188 GR	1700 GR	1050 GR	1058 GR	1098 GR	1220 GR	1250 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/OBC: 0-5270	GR/OBC: 0-5320	GR/OBC: 0-5240	GR/OBC: 100-5030	GR/OBC: 2748-4780	GR/OBC: 45-5080	GR/OBC: 0-4860	GR/OBC: 0-4986	OBC/CNL: 2100-4089 OIL/LL: 2100-4097 Laser: 3834-4100	OBC/CNL: 100-4148 OIL/LL: 2100-4148
TULLY LIMESTONE	3348-	3448-	3426-	3174-	3072-	3205-	3034-	3118-	2362-	2415-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3550-	3638-	3628-	3354-	3310-	3420-	3220-	3310-	2582-	2630-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3716-	3808-	3792-	3534-		3574-	3399-	3486-		
SILURIAN-DEVONIAN CARBONATES	3736-	3822-	3806-	3546-	3506-	3604-	3416-	3508-	2830-	2858-
SALINA GROUP LOCKPORT DOLOMITE	3852- 4572-	3923- 4644-	3918- 4660-	3637- 4360-	3564- 4160-	3699- 4430-	3502- 4236-	3596- 4334-	2896- 3480-	2926- 3518-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4872- 4932-	4957- 5016-	4937- 4958-	4642- 4699-	4424- 4480-	4720- 4778-	4506- 4562-	4606- 4662-	3752- 3808-	3794- 3848-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	4990- 5104- 5170-	5072- 5205- 5255-	5040- 5212-	4756- 4862- 4936-	4522- 4618- 4682-	4836- 4982- 5015-	4618- 4733- 4796-	4716- 4824- 4896-	3832- 3953- 4012-	3872- 3994- 4054-
QUEENSTON FORMATION	5182-	5268-		4954-	4695-	5026-	4814-	4913-	4022-	4064-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4993-5096	5075-5189	5067-5173	4755-4902	4554-4611	4838-4975	4621-4746	4720-4814	3873-3933	3915-3966
TOTAL DEPTH	5308	5324	5311	5035	4784	5093	4863	4989	4138	4167
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	420 Mcf AF 1,350 psi/48 hrs. development Kantz Corners field	260 Mcf AF 1,450 psi/48 hrs. development Kantz Corners field	316 Mcf AF 1,350 psi/48 hrs. development Kantz Corners field	150 Mcf AF 900 psi/48 hrs. development Kantz Corners field	500 Mcf AF 1,100 psi/48 hrs. development Rockdale field	1,300 Mcf AF 1,310 psi/48 hrs. development Cochranton field	259 Mcf AF 1,250 psi/48 hrs. development Kantz Corners field	200 Mcf AF 1,150 psi/48 hrs. development Kantz Corners field	146 Mcf AF 1,180 psi/168 hrs. development Cambridge Springs field	146 Mcf AF 1,190 psi/168 hrs. development Cambridge Springs field

Figure 33. *(Continued).*

COUNTY Permit Number	Crawford 039-22279	Crawford 039-22280	Crawford 039-22281	Crawford 039-22283	Crawford 039-22288	Crawford 039-22289	Crawford 039-22290	Crawford 039-22291	Crawford 039-22292	Crawford 039-22293
NAME OF WELL	Burnside #1	Walker #1	Capp #1	F. Laush #3	E. Charles Herrick #1	E. Charles Herrick #2	R. Agnew (M. Mills #1)	A. T. Boban #4	Robert C. Clark #1	Harold Ourfee #1
OPERATOR	Meridian Exploration #192	Meridian Exploration #193	Meridian Exploration #191	Cabot Oil & Gas Company	N.E.A. Cross Company	N.E.A. Cross Company	Mitchell Energy Corporation	Meridian Oil & Gas Enterprises, Inc.	Old Mountain Gas Company	Old Mountain Gas Company
TOWNSHIP	Venango	Venango	Venango	Fairfield	Cambridge	Cambridge	Summit	Beaver	Beaver	Beaver
QUADRANGLE	Cambridge Springs	Cambridge Springs	Cambridge Springs	Cochranton	Cambridge Springs	Cambridge Springs	Harmonsburg	Beaver Center	Beaver Center	Beaver Center
LATITUDE	3,700 ft. S 41°50'00"	3,500 ft. S 41°50'00"	200 ft. S 41°50'00"	14,450 ft. S 41°32'30"	11,300 ft. S 41°52'30"	11,800 ft. S 41°52'30"	7,650 ft. S 41°42'30"	6,740 ft. S 41°50'00"	2,675 ft. S 41°50'00"	850 ft. S 41°50'00"
LONGITUDE	6,100 ft. W 80°05'00"	3,300 ft. W 80°05'00"	11,150 ft. W 80°05'00"	800 ft. W 80°05'00"	7,075 ft. W 80°00'00"	5,650 ft. W 80°00'00"	4,500 ft. W 80°20'00"	11,140 ft. W 80°25'00"	300 ft. W 80°27'30"	3,350 ft. W 80°27'30"
DATE COMPLETED	10-19-84	10-25-84	10-31-84	1-7-85	10-16-84	10-10-84	2-16-85	12-7-84	3-11-85	2-25-85
ELEVATION	1245 GR	1180 GR	1325 GR	1396 GR	1335 GR	1290 GR	1125 GR	1013 GR	1000 GR	980 GR
LOGS RECEIVED AND LOGGED INTERVALS	OBC/CNL: 2114-4143 OIL/LL: 2100-4142	DBC/CNL: 2D00-4097 OIL/LL: 2000-4099	OBC/CNL: 2195-4195 OIL/LL: 2197-4197	GR/OBC: 536-5394		GR: 2500-4328	SDN: 535-4231			
TULLY LIMESTONE	2430-	2380-	2468-	3476-	2598-	2574-	2436-		1960-	
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2640-	2588-	2682-	3672-	2826-	2798-	2597-	2169-	2125-	2115-
ORISKANY SANDSTONE RIDGELEY SANDSTONE				3841-		3012-	2794-	2466-	2356-	2126-
SILURIAN-DEVONIAN CARBONATES	2854-	2798-	2913-	3860-		3030-	2806-	2483-		
SALINA GROUP LOCKPORT DOLOMITE	2914- 3530-	2866- 3470-	2980- 3580-	3964- 4712-		3080- 3670-	2884- 3580-	2670- 3206-	2700-	
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3780- 3842-	3748- 3800-	3851- 3904-	4996- 5050-	4020-	3942- 3996-	3824- 3896-	3433-		
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3866- 4000- 4049-	3824- 3960- 4002-	3930- 4057- 4110-	5118- 5262- 5300-	4056- 4170- 4220-	4032- 4146- 4200-	3938- 4034- 4113-	3618-	3381- 3463- 3552-	3355- 3467- 3522-
QUEENSTON FORMATION	4057-	4014-	4118-	5312-	4232-	4210-	4121-	3624-	3559-	3539-
PRODUCING FORMATION		Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL		3871-3924	3972-4029	5352-5257	4108-4147	4096-4140	3968-412D	3505-3521	3384-3454	3415-3438
TOTAL DEPTH	4197	4133	4228	5431	4355	4328	4243	3715	3651	3621
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	Plugged & abandoned development Cambridge Springs field	315 Mcf AF 1,160 psi/384 hrs. development Cambridge Springs field	94 Mcf AF 1,130 psi/168 hrs. development Cambridge Springs field	2,500 Mcf AF 1,200 psi/48 hrs. development Kantz Corners field	40D Mcf AF 1,000 psi/48 hrs. development Rockdale field	500 Mcf AF 1,150 psi/48 hrs. development Rockdale field	30 Mcf AF, 9 BBL 1,06D psi/120 hrs. development Carlson pool Conneaut field	200 Mcf AF 1,075 psi/72 hrs. development Stone Run pool Conneaut field	350 Mcf AF 1,050 psi/72 hrs. development Mud Run pool Conneaut field	330 Mcf AF 1,075 psi/72 hrs. development Mud Run pool Conneaut field

COUNTY Permit Number	Crawford 039-22295	Crawford 039-22296	Crawford 039-22297	Crawford 039-22299	Crawford 039-22300	Crawford 039-22301	Crawford 039-22302	Crawford 039-22303	Crawford 039-22304	Crawford 039-22305
NAME OF WELL	J. & O. Jones (Gallaher #2)	Arbogast #1	Tobin #1	Mathews #1	H. Drake #1	Tapper #1	Ritter #1	Ritter #2	G. Foster (Foster #1)	O. Miehl #1
OPERATOR	Mitchell Energy Corporation	Meridian Exploration #223	Meridian Exploration #222	Meridian Exploration #220	Meridian Exploration #215	Meridian Exploration #214	Commodore Energy Company	Commodore Energy Company	Mitchell Energy Corporation	Mitchell Energy Corporation
TOWNSHIP	Summerhill	Cambridge	Venango	Venango	Venango	Cambridge	Conneaut	Conneaut	Summerhill	Spring
QUADRANGLE	Harmonsburg	Cambridge Springs	Cambridge Springs	Cambridge Springs	Cambridge Springs	Cambridge Springs	Linesville	Linesville	Linesville	Conneautville
LATITUDE	1,720 ft. S 41°42'30"	10,950 ft. S 41°50'00"	9,400 ft. S 41°50'00"	5,850 ft. S 41°50'00"	2,600 ft. S 41°50'00"	14,900 ft. S 41°52'30"	7,690 ft. S 41°42'30"	8,300 ft. S 41°42'30"	5,770 ft. S 41°45'00"	3,900 ft. S 41°50'00"
LONGITUDE	50 ft. W 80°20'00"	3,500 ft. W 80°05'00"	3,200 ft. W 80°05'00"	10,800 ft. W 80°02'30"	600 ft. W 80°05'00"	7,800 ft. W 80°02'30"	8,630 ft. W 80°22'30"	6,960 ft. W 80°22'30"	4,000 ft. W 80°22'30"	5,870 ft. W 80°15'00"
DATE COMPLETED	1-19-85	11-28-84	11-26-84	10-29-84	12-3-84	10-22-84	1-11-85	1-5-85	2-23-85	11-10-84
ELEVATION	1148 GR	1245 GR	1180 GR	1155 GR	1150 GR	1160 GR	1230 GR	1254 GR	1100 GR	1221 GR
LOGS RECEIVED AND LOGGED INTERVALS	SON: 446-4232	OBC/CNL: 2150-4170 OIL/LL: 2150-4174	OBC/CNL: 438-4159 OIL/LL: 2100-4150	CNL/GR: 0-4136 OIL/GR: 2350-4136	OBC/CNL: 408-4100	OBC/CNL: 2100-4172 OIL/LL: 2100-4174			GR/PCL: 2034-4034	GR/OBC: 1931-3935
TULLY LIMESTONE	2456-	2430-	2433-	2386-	2370-	2404-	2480-	2510-	2284-	2264-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2620-	2636-	2640-	2596-	2581-	2620-	2640-	2670-	2446-	2452-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	2814-		2842-						2645-	2658-
SILURIAN-DEVONIAN CARBONATES	2824-	2830-	2856-	2802-	2792-	2846-	2920-	2960-	2650-	2661-
SALINA GROUP LOCKPORT DOLOMITE	2896- 3606-	2896- 3518-	2902- 3520-	2870- 3476-	2858- 3470-	2912- 3528-	3112- 3597-	3090- 3480-	3303- 3408-	2730- 3349-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3833- 3906-	3794- 3848-	3794- 3850-	3754- 3808-	3748- 3800-	3788- 3842-			3672- 3720-	3600- 3655-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3947- 4043- 4120-	3886- 4004- 4054-	3874- 3980- 4052-	3832- 3946- 4014-	3824- 3948- 4004-	3878- 3970- 4044-	3982- 4084- 4140-	4024- 4116- 4180-	3762- 3857- 3936-	3693- 3776- 3855-
QUEENSTON FORMATION	4130-	4065-	4062-	4024-	4016-	4054-	4168-	4204-	3944-	3864-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3973-4125	3951-3991	3919-3977	3882-3973	3882-3946	3907-3966	4037-4073	4061-4111	3783-3942	3720-3860
TOTAL DEPTH	4248	4174	4159	4145	4119	4179	4271	4204	4050	3963
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	20 Mcf AF 920 psi/48 hrs. development Indian Springs pool Conneaut field	108 Mcf AF 1,170 psi/168 hrs. development Cambridge Springs field	66 Mcf AF 1,150 psi/168 hrs. development Cambridge Springs field	103 Mcf AF 1,165 psi/192 hrs. development Cambridge Springs field	84 Mcf AF 1,150 psi/168 hrs. development Cambridge Springs field	60 Mcf AF 1,240 psi/288 hrs. development Cambridge Springs field	550 Mcf AF 850 psi/72 hrs. development Blood pool Conneaut field	1,000 Mcf AF 1,050 psi/72 hrs. development Blood pool Conneaut field	5 Mcf AF 595 psi/48 hrs. development Indian Springs pool Conneaut field	261 Mcf AF 1,090 psi/144 hrs. development Indian Springs pool Conneaut field

Figure 33. *(Continued).*

COUNTY Permit Number	Crawford 039-22306	Crawford 039-22307	Crawford 039-22308	Crawford 039-22309	Crawford 039-22315	Crawford 039-22317	Crawford 039-22319	Crawford 039-22320	Crawford 039-22321	Crawford 039-22322
NAME OF WELL	G. Zupancic & WPECO. #1	Fred Wade #1	C. Skelton #1	Bingham #1	W. J. Hyde #4	Konyha #1	Skelton #2	Skelton #3	James F. Reighard #1	Theodore W. Bauer #1
OPERATOR	Mitchell Energy Corporation	Meridian Exploration #217	Meridian Exploration #195	Meridian Exploration #219	Meridian Oil & Gas Enterprises, Inc.	Meridian Exploration #210	Meridian Exploration #201	Meridian Exploration #202	Cardinal Oil Company #84-02	Cardinal Oil Company #01
TOWNSHIP	Sadsbury	Cambridge	Venango	Venango	Spring	Cambridge	Venango	Venango	Cussewago	Spring
QUADRANGLE	Harmonsburg	Cambridge Springs	Cambridge Springs	Cambridge Springs	Beaver Center	Cambridge Springs	Cambridge Springs	Cambridge Springs	Edinboro South	Conneautville
LATITUDE	13,570 ft. S 41°40'00"	3,500 ft. S 41°50'00"	14,400 ft. S 41°52'30"	4,150 ft. S 41°50'00"	4,040 ft. S 41°50'00"	14,350 ft. S 41°52'30"	12,700 ft. S 41°52'30"	14,900 ft. S 41°52'30"	3,470 ft. S 41°50'00"	6,280 ft. S 41°50'00"
LONGITUDE	6,030 ft. W 80°20'00"	6,550 ft. W 80°02'30"	6,650 ft. W 80°05'00"	10,550 ft. W 80°02'30"	8,660 ft. W 80°22'30"	6,200 ft. W 80°02'30"	6,500 ft. W 80°05'00"	4,800 ft. W 80°05'00"	4,980 ft. W 80°10'00"	7,120 ft. W 80°20'00"
DATE COMPLETED	11-5-84	11-6-84	11-14-84	11-12-84	12-21-84	11-19-84	11-30-84	11-20-84	2-4-85	12-22-84
ELEVATION	1120 GR	1140 GR	1200 GR	1150 GR	950 GR	1170 GR	1170 GR	1160 GR	1413 GR	1121 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/CNL/GR:2350-4371 DLL/GR: 2350-4363 Laser: 4080-4270	GR/CNL: 0-4150 DIL/LL: 2350-4150	DBC/CNL: 424-4116 DIL/LL: 2100-4118	DBC/CNL: 428-4126 DIL/LL: 2100-4128		DBC/CNL: 471-4175 DIL/LL: 2100-4175	DBC/CNL: 428-4081 DIL/LL: 2000-4083	DBC/CNL: 2039-4111 DIL/LL: 2000-4133		GR/FDC: 0-3810 GO: 400-3809 GR/CCL: 3550-3828
TULLY LIMESTONE	2562-	2398-	2368-	2382-		2412-	2328-	2354-	2535-	2174-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2720-	2608-	2586-	2592-	2106-	2628-	2546-	2568-	2738-	2350-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	2917-				2410-		2798-			2572-
SILURIAN-DEVONIAN CARBONATES	2932-	2822-	2822-	2798-	2431-	2848-	2818-	2794-	2910-	2601-
SALINA GROUP LOCKPORT DOLOMITE	3009- 3726-	2892- 3492-	2886- 3496-	2864- 3490-	2700- 3147-	2920- 3504-	2864- 3446-	2862- 3480-	3036- 3620-	2653- 3257-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3986- 4036-	3772- 3822-	3753- 3806-	3736- 3798-	3366-	3791- 3846-	3716- 3770-	3743- 3794-	3864-	3508- 3577-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	4081- 4183- 4261-	3860- 3981- 4028-	3843- 3964- 4012-	3823- 3956- 4000-	3556-	3881- 4010- 4052-	3794- 3930- 3976-	3818- 3948- 3996-	4000-	3610- 3727- 3785-
QUEENSTON FORMATION	4268-	4038-	4020-	4012-	3560-	4062-	3988-	4006-	4184-	3793-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4105-4263	3908-3975	3876-3952	3868-4008	3431-3453	3913-3979	3835-3889	3862-3945	4042-4090	3631-3716
TOTAL DEPTH	4406	4154	4125	4131	3610	4184	4122	4141	4196	3799
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	262 Mcf AF 990 psi/240 hrs. extension Conneaut Lake field	133 Mcf AF 1,220 psi/192 hrs. development Cambridge Springs field	87 Mcf AF 1,120 psi/168 hrs. development Cambridge Springs field	153 Mcf AF 1,150 psi/168 hrs. development Cambridge Springs field	560 Mcf AF 1,150 psi/72 hrs. development Stone Run pool Conneaut field	60 Mcf AF 1,240 psi/168 hrs. development Cambridge Springs field	67 Mcf AF 1,170 psi/168 hrs. development Cambridge Springs field	119 Mcf AF 1,220 psi/168 hrs. development Cambridge Springs field	100 Mcf AF 1,000 psi/72 hrs. development Cussewago field	465 Mcf AF 1,000 psi/72 hrs. development Lundys Lane pool Conneaut field

COUNTY Permit Number	Crawford 039-22327	Crawford 039-22328	Crawford 039-22338	Crawford 039-22339	Crawford 039-22343	Crawford 039-22349	Crawford 039-22350	Crawford 039-22355	Crawford 039-22356	Crawford 039-22357
NAME OF WELL	E. Charles Herrick #4	Mikolay #1	Francis Hornaman #1	Harry Williams #1	M. Lippert #4	Cletus Troyer #1	Cletus Troyer #2	H. Shellito #3	Headley #2-A	T. P. Racop #2
OPERATOR	N.E.A. Cross Company	Meridian Exploration #218	Meridian Exploration #203	Meridian Exploration #216	Cabot Oil & Gas Company	Troyer Land Resources	Troyer Land Resources	Mitchell Energy Corporation	Commodore Energy Company	Kaltsas Oil Company, Inc.
TOWNSHIP	Rockdale	Venango	Venango	Cambridge	Wayne	Rockdale	Rockdale	Summit	Conneaut	Rockdale
QUADRANGLE	Millers Station	Cambridge Springs	Cambridge Springs	Cambridge Springs	Cochranton	Millers Station	Millers Station	Linesville	Linesville	Millers Station
LATITUDE	11,850 ft. S 41°52'30"	6,300 ft. S 41°50'00"	14,350 ft. S 41°50'00"	13,250 ft. S 41°50'00"	8,750 ft. S 41°32'30"	8,900 ft. S 41°50'00"	10,100 ft. S 41°50'00"	5,780 ft. S 41°40'00"	15,150 ft. S 41°45'00"	13,100 ft. S 41°52'30"
LONGITUDE	10,050 ft. W 79°57'30"	5,650 ft. W 80°02'30"	9,700 ft. W 80°05'00"	8,700 ft. W 80°00'00"	10,800 ft. W 80°00'00"	9,800 ft. W 79°57'30"	9,800 ft. W 79°57'30"	200 ft. W 80°22'30"	250 ft. W 80°25'00"	7,700 ft. W 79°57'30"
DATE COMPLETED	4-25-85	12-8-84	12-28-84	12-29-84	3-10-85	2-1-85	2-5-85	3-28-85	1-17-85	5-23-85
ELEVATION	1200 GR	1140 GR	1210 GR	1150 GR	1115 GR	1150 GR	1140 GR	1240 GR	1151 GR	1204 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/DBC: 2200-4221	DBC/CNL: 422-4118 DIL/LL: 2100-4120	GR/CNL: 422-4118 DIL: 2100-4120	GR/CNL: 2199-4244 DIL/LL: 2021-4246	GR/OBC: 0-5070 GR/GD: 0-5066	GR/DBC: 2241-4266	GR/DBC: 2197-4251 PCL: 3996-4062	GR: 2374-4374		
TULLY LIMESTONE	2494-	2404-	2404-	2476-	3190-	2522-	2514-	2617-	2350-	2510-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2718-	2612-	2612-	2688-	3400-	2736-	2732-	2755-	2514-	2728-
ORISKANY SANDSTONE RIDGELEY SANDSTONE			Absent	Absent	3563-			2971-		
SILURIAN-DEVONIAN CARBONATES	2918-	2814-	2814-	2880-	3582-	2918-	2920-	2976-	2862-	
SALINA GROUP LOCKPORT DOLOMITE	2980- 3610-	2886- 3488-	2887- 3496-	2950- 3570-	3686- 4435-	2992- 3624-	2986- 3596-	3066- 3737-	3388-	3266- 3513-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3845- 3912-	3762- 3816-	3753- 3816-	3840- 3911-	4706- 4765-	3868- 3924-	3862- 3918-	4036- 4089-		3849- 3904-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3936- 4050- 4116-	3853- 3968- 4018-	3840- 3977- 4018-	3951- 4070- 4116-	4798- 4965- 5000-	3963- 4073- 4128-	3971- 4070- 4122-	4135- 4231- 4310-	3853- 3956- 4010-	3954- 4071- 4108-
QUEENSTON FORMATION	4127-	4032-	4032-	4128-	5010-	4142-	4136-	4317-	4036-	4123-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3984-4046	3893-3968	3978-4014	4031-4070	4829-4952	4007-4060	3996-4062	4157-4314	3907-3940	4022-4119
TOTAL DEPTH	4234	4132	4202	4262	5090	4267	4255	4412	4150	4201
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	3,000 Mcf AF 1,150 psi/48 hrs. development Rockdale field	26 Mcf AF 1,180 psi/168 hrs. development Cambridge Springs field	84 Mcf AF 1,190 psi/168 hrs. development Cambridge Springs field	42 Mcf AF 1,100 psi/168 hrs. development Cambridge pool Cambridge Springs field	1,300 Mcf AF 980 psi/48 hrs. development Cochranton field	2,000 Mcf AF 1,250 psi/72 hrs. development Rockdale field	2,000 Mcf AF 1,250 psi/72 hrs. development Rockdale field	166 Mcf AF 1,125 psi/53 hrs. development Carlson pool Conneaut field	500 Mcf AF 1,100 psi/72 hrs. development Blood pool Conneaut field	450 Mcf AF 1,150 psi/72 hrs. development Rockdale field

Figure 33. *(Continued).*

COUNTY Permit Number	Crawford 039-22360	Crawford 039-22361	Crawford 039-22365	Crawford 039-22370	Crawford 039-22371	Crawford 039-22372	Crawford 039-22377	Crawford 039-22380	Crawford 039-22381	Crawford 039-22383
NAME OF WELL	Williams (Plyler #2)	H. Eberhart (R. Fry Unit #2)	Robert A. Hedderick #1	K. Reynolds #3	Kubochik (Richmond #2)	Fuller (Ballo #2)	J. Jackson #1	J. Hille (Handelman #2)	A. Stevens #1	Joseph Bauer #1
OPERATOR	Mitchell Energy Corporation	Mitchell Energy Corporation	N.E.A. Cross Company	Mitchell Energy Corporation	Mitchell Energy Corporation	Mitchell Energy Corporation	Mitchell Energy Corporation	Mitchell Energy Corporation	Mitchell Energy Corporation	Meridian Exploration #294
TOWNSHIP	Summit	Summit	Bloomfield	Summit	Summerhill	Conneaut	Summit	Summerhill	Conneaut	Venango
QUADRANGLE	Harmonsburg	Linesville	Millers Station	Harmonsburg	Harmonsburg	Linesville	Linesville	Harmonsburg	Linesville	Cambridge Springs
LATITUDE	2,240 ft. S 41°40'00"	12,525 ft. S 41°42'30"	10,300 ft. S 41°52'30"	9,100 ft. S 41°42'30"	2,050 ft. S 41°42'30"	12,960 ft. S 41°42'30"	12,220 ft. S 41°42'30"	2,675 ft. S 41°42'30"	6,830 ft. S 41°42'30"	6,200 ft. S 41°50'00"
LONGITUDE	8,275 ft. W 80°20'00"	1,160 ft. W 80°22'30"	2,650 ft. W 79°52'30"	9,975 ft. W 80°20'00"	9,175 ft. W 80°20'00"	9,900 ft. W 80°25'00"	4,930 ft. W 80°22'30"	10,975 ft. W 80°20'00"	5,250 ft. W 80°22'30"	1,100 ft. W 80°05'00"
DATE COMPLETED	3-11-85	3-12-85	3-29-85	3-5-85	3-18-85	3-2-85	3-20-85	4-10-85	3-28-85	3-11-85
ELEVATION	1138 GR	1257 GR	1620 GR	1206 GR	1183 GR	1170 GR	1265 GR	1227 GR	1255 GR	1185 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/PCL: 2387-4387	GR: 2356-4356 PCL: 4103-4253	GR/DBC: 2890-4628	PCL: 4027-4180	GR/PCL: 2210-4210	GR/PCL: 2238-4238	PCL: 4103-4253	GR/PCL: 2215-4215	FDC/CNL: 426-4296	DBC/CNL: 0-4148 DIL/LL: 2350-4148
TULLY LIMESTONE	2614-	2582-	2956-	2493-	2453-	2485-	2568-	2484-	2501-	2421-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2770-	2740-	3186-	2651-	2612-	2635-	2731-	2640-	2658-	2628-
ORISKANY SANDSTONE RIDGELEY SANDSTONE		2935-		2851-	2811-	2837-	2926-		2856-	
SILURIAN-DEVONIAN CARBONATES	2968-	2946-	3376-	2857-	2820-	2846-	2931-	2841-	2868-	2790-
SALINA GROUP LOCKPORT DOLOMITE	3057- 3766-	3027- 3710-	3426- 4016-	2948- 3616-	2898- 3572-	2917- 3634-	3006- 3688-	2934- 3632-	2945- 3653-	2904- 3534-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4026- 4078-	4003- 4054-	4264- 4330-	3907- 3960-	3862- 3913-	3894- 3946-	3972- 4031-	3844- 3948-	3873- 3966-	3790- 3842-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	4123- 4217- 4298-	4098- 4195- 4273-	4370- 4485- 4530-	4005- 4095- 4176-	3956- 4048- 4130-	3990- 4083- 4166-	4074- 4166- 4246-	3990- 4084- 4162-	4007- 4100- 4180-	3867- 3984- 4048-
QUEENSTON FORMATION	4308-	4281-	4542-	4183-	4140-	4174-	4255-	4168-	4189-	4058-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4148-4303	4126-4279	4404-4460	4017-4180	3984-4134	4014-4171	4103-4253	4015-4165	4027-4187	3910-3959
TOTAL DEPTH	4400	4372	4654	4303	4225	4245	4355	4238	4300	4153
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	37 Mcf AF, 2 BBL 1,145 psi/51 hrs. development Carlson pool Conneaut field	205 Mcf AF 1,110 psi/91 hrs. development Carlson pool Conneaut field	500 Mcf AF 1,150 psi/48 hrs. development Rockdale field	63 Mcf AF 1,160 psi/48 hrs. development Carlson pool Conneaut field	31 Mcf AF 610 psi/48 hrs. development Indian Springs pool Conneaut field	189 Mcf AF, 6 BBL 1,205 psi/192 hrs. development Blood pool Conneaut field	159 Mcf AF 1,160 psi/72 hrs. development Blood pool Conneaut field	74 Mcf AF 1,120 psi/74 hrs. development Indian Springs pool Conneaut field	177 Mcf AF 1,075 psi/68 hrs. development Carlson pool Conneaut field	119 Mcf AF 1,090 psi/168 hrs. development Cambridge Springs field

COUNTY Permit Number	Crawford 039-22384	Crawford 039-22385	Crawford 039-22387	Crawford 039-22389	Crawford 039-22398	Crawford 039-22399	Crawford 039-22401	Crawford 039-22404	Crawford 039-22407	Crawford 039-22408
NAME OF WELL	Louis Merhar #1	Eldredge St. John #1	E. Willey #1	Clayton Kuhn #01	Mathews #4	Mathews Unit #5	Yovich #2	Finck #1	Morton #1	Krietz #2
OPERATOR	Meridian Exploration #295	N.E.A. Cross Company	Haddad & Brooks, Inc. #HB-228-2	Cardinal Oil Company #85-01	Meridian Exploration #301	Meridian Exploration #303	Meridian Exploration #306	Meridian Exploration #304	Meridian Exploration #302	Meridian Exploration #299
TOWNSHIP	Rockdale	Bloomfield	Oil Creek	Beaver	Cambridge	Cambridge	Rockdale	Cambridge	Cambridge	Cambridge
QUADRANGLE	Millers Station	Millers Station	Titusville North	Beaver Center	Cambridge Springs	Cambridge Springs	Millers Station	Cambridge Springs	Cambridge Springs	Cambridge Springs
LATITUDE	13,150 ft. S 41°52'30"	5,850 ft. S 41°50'00"	13,000 ft. S 41°40'00"	3,480 ft. S 41°47'30"	1,150 ft. S 41°50'00"	800 ft. S 41°50'00"	9,150 ft. S 41°52'30"	9,300 ft. S 41°50'00"	1,100 ft. S 41°50'00"	14,950 ft. S 41°52'30"
LONGITUDE	1,800 ft. W 79°57'30"	5,700 ft. W 79°52'30"	3,350 ft. W 79°37'30"	11,090 ft. W 80°22'30"	4,150 ft. W 80°02'30"	5,750 ft. W 80°02'30"	800 ft. W 79°55'00"	7,200 ft. W 80°02'30"	8,750 ft. W 80°02'30"	2,700 ft. W 80°02'30"
DATE COMPLETED	3-22-85	4-21-85	4-8-85	4-22-85	5-6-85	5-31-85	5-28-85	5-15-85	5-12-85	5-23-85
ELEVATION	1200 GR	1650 GR	1327 GR	1062 GR	1145 GR	1140 GR	1620 GR	1140 GR	1160 GR	1150 GR
LOGS RECEIVED AND LOGGED INTERVALS	OBC/CNL: 2200-4224 DIL/LL: 2124-4226	GR/OBC: 2748-4774	GR/OBC: 0-5642 GR/LL: 796-5636		GR/FOC: 0-4124 GR/OIL: 596-4124	GR/FOC/CNL: 0-4110 OIL: 512-4110 PCL: 3750-4064	PCL: 4300-4586 SNP: 430-4180	GR/FOC: 0-4094 GR/OIL: 434-4115	GR/FOC: 0-4087 SNP: 420-3300 OIL: 420-4112	GR/FOC: 0-4093 OIL: 429-4117
TULLY LIMESTONE	2514-	3098-	3800-	2132-	2412-	2395-	2934-	2420-	2396-	2418-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2738-	3324-	4074-	2510-	2624-	2608-	3162-	2628-	2607-	2632-
ORISKANY SANDSTONE RIDGELEY SANDSTONE			4194-							
SILURIAN-DEVONIAN CARBONATES	2897-	3504-	4210-		2834-	2826-	3360-	2822-	2822-	2851-
SALINA GROUP LOCKPORT DOLOMITE	2988- 3586-	3560- 4170-	4296- 4996-	2594- 3188-	2902- 3512-	2892- 3562-	3420- 3998-	2892- 3519-	2888- 3524-	2918- 3523-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3830- 3910-	4432- 4490-	5276- 5347-	3456-	3784- 3838-	3772- 3822-	4242- 4320-	3748- 3830-	3774- 3826-	3790- 3843-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3934- 4049- 4112-	4534- 4642- 4694-	5405- 5544- 5572-	3555-	3875- 3987- 4039-	3847- 3987- 4026-	4344- 4487- 4523-	3854- 3992- 4038-	3850- 3992- 4036-	3866- 4000- 4046-
QUEENSTON FORMATION	4124-	4708-	5577-	3741-	4050-	4034-	4532-	4050-	4044-	4057-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4018-4046	4583-4638	5471-5523	3596-3642	3914-3984	3887-3958	4395-4530	3901-3981	3904-3949	3926-3992
TOTAL DEPTH	4229	4787	5645	3861	4160	4165	4650	4150	4162	4155
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	190 Mcf AF 1,220 psi/168 hrs. development Rockdale field	1,200 Mcf AF 1,200 psi/48 hrs. development Rockdale field	787 Mcf AF 1,275 psi/72 hrs. development Bates Hollow pool Church Run field	97 Mcf AF 1,025 psi/96 hrs. development Indian Springs pool Conneaut field	112 Mcf AF 1,138 psi/168 hrs. development Cambridge Springs field	119 Mcf AF 1,210 psi/168 hrs. development Cambridge Springs field	84 Mcf AF 1,200 psi/168 hrs. development Rockdale field	119 Mcf AF 1,200 psi/168 hrs. development Cambridge pool Cambridge Springs field	119 Mcf AF 1,140 psi/168 hrs. development Cambridge Springs field	84 Mcf AF 1,200 psi/168 hrs. development Cambridge Springs field

Figure 33. *(Continued).*

COUNTY Permit Number	Crawford 039-22410	Crawford 039-22411	Crawford 039-22412	Crawford 039-22413	Crawford 039-22415	Crawford 039-22418	Crawford 039-22419	Crawford 039-22420	Crawford 039-22421	Crawford 039-22425
NAME OF WELL	Brown #1	Webster #1	Bonecutter #1	Lowenhaupt #1	Johnson #1	Clegg #2	Seager #1	DeSarro #1	Euliano #1	Culbertson #1
OPERATOR	Meridian Exploration #281	Meridian Exploration #293	Meridian Exploration #285	Meridian Exploration #179	Meridian Exploration #207	Meridian Exploration #280	Meridian Exploration #287	Meridian Exploration #208	Meridian Exploration #288	Meridian Exploration #291
TOWNSHIP	Rockdale	Cambridge	Rockdale	Rockdale	Rockdale	Cambridge	Rockdale	Rockdale	Rockdale	Venango
QUADRANGLE	Millers Station	Cambridge Springs	Millers Station	Millers Station	Millers Station	Cambridge Springs	Millers Station	Millers Station	Cambridge Springs	Edinboro South
LATITUDE	14,250 ft. S 41°52'30"	6,000 ft. S 41°50'00"	9,350 ft. S 41°47'30"	7,050 ft. S 41°47'30"	12,500 ft. S 41°52'30"	15,050 ft. S 41°47'30"	10,700 ft. S 41°47'30"	14,275 ft. S 41°52'30"	8,800 ft. S 41°47'30"	100 ft. S 41°50'00"
LONGITUDE	2,900 ft. W 79°55'00"	4,050 ft. W 80°00'00"	6,100 ft. W 79°57'30"	9,700 ft. W 79°57'30"	500 ft. W 79°55'00"	450 ft. W 80°02'30"	5,100 ft. W 79°57'30"	10,900 ft. W 79°52'30"	6,700 ft. W 80°00'00"	4,350 ft. W 80°07'30"
DATE COMPLETED	6-5-85	6-6-85	6-18-85	6-12-85	5-29-85	6-26-85	6-19-85	8-2-85	7-20-85	7-21-85
ELEVATION	1500 GR	1300 GR	1355 GR	1370 GR	1545 GR	1220 GR	1370 GR	1585 GR	1500 GR	1355 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/FDC: 0-4536 SNP: 2800-4200 GR/DIL: 432-4536 PCL: 4300-4500	GR/FDC: 0-4279 PCL: 3970-4280			GR/FDC: 0-4543 GR/DIL: 2763-4561		PCL: 4200-4518	PCL: 4280-4580		
TULLY LIMESTONE	2854-	2622-	2842-	2818-	2908-	2490-	2870-	2950-	2918-	2490-
ONONDAGA LIMESTONE MUNTERSVILLE CHERT	3080-	2834-	3055-	3026-	3136-	2713-	3086-	3177-	3126-	2704-
ORISKANY SANDSTONE RIDGELEY SANDSTONE										Bois Blanc 2880-
SILURIAN-DEVONIAN CARBONATES	3268-	3026-	3230-	3203-	3322-	2931-	3270-	3362-	3313-	2929-
SALINA GROUP LOCKPORT DOLOMITE	3328- 3930-	3098- 3734-	3358- 3892-	3324- 3850-	3382- 3970-	3040- 3545-	3382- 3920-	3477- 3970-	3437- 3988-	3053- 3527-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4190- 4246-	3952- 4024-	4186- 4267-	4147- 4246-	4240- 4296-	3838- 3912-	4236- 4276-	4250- 4335-	4300- 4366-	3840- 3922-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	4286- 4400- 4446-	4062- 4186- 4226-	4292- 4418- 4472-	4270- 4406- 4450-	4336- 4462- 4500-	3937- 4078- 4115-	4320- 4442- 4500-	4359- 4488- 4536-	4390- 4528- 4572-	4001- 4072- 4128-
QUEENSTON FORMATION	4459-	4244-	4486-	4464-	4510-	4128-	4518-	4550-	4589-	4135-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4333-4399	4113-4183	4362-4406	4317-4398	4375-4449	4011-4075	4377-4440	4419-4487	4451-4514	4002-4033
TOTAL DEPTH	4570	4360	4598	4570	4576	4237	4620	4655	4694	4236
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	42 Mcf AF 1,280 psi/168 hrs. development Rockdale field	133 Mcf AF 1,220 psi/168 hrs. development Rockdale field	119 Mcf AF 1,185 psi/96 hrs. development Zirkle pool Richmond Township field	42 Mcf AF 1,220 psi/168 hrs. development Zirkle pool Richmond Township field	133 Mcf AF 1,200 psi/168 hrs. development Rockdale field	103 Mcf AF 1,160 psi/96 hrs. development Cambridge Springs field	133 Mcf AF 1,170 psi/96 hrs. development Brown Hill pool Eaton Corners field	84 Mcf AF 1,220 psi/168 hrs. development Rockdale field	84 Mcf AF 1,210 psi/168 hrs. development Zirkle pool Richmond Township field	119 Mcf AF 1,320 psi/168 hrs. development Cambridge Springs field

COUNTY Permit Number	Crawford 039-22426	Crawford 039-22427	Crawford 039-22428	Crawford 039-22430	Crawford 039-22431	Crawford 039-22432	Crawford 039-22433	Crawford 039-22438	Crawford 039-22439	Crawford 039-22440
NAME OF WELL	Henning #1	Zilhaver #1	Batchelor #2	D. Castor #1	O. Brazalovic (Drda #3)	Robert Edwards #1	David J. Orr #1	James Wilcox #1	J. Heald #1	H. Schambach (Leonard #3)
OPERATOR	Meridian Exploration #290	Meridian Exploration #292	Meridian Exploration #283	Mitchell Energy Corporation	Mitchell Energy Corporation	N.E.A. Cross Company	N.E.A. Cross Company	Troyer Gas & Oil Company	Mitchell Energy Corporation	Mitchell Energy Corporation
TOWNSHIP	Rockdale	Rockdale	Cambridge	Summit	Summit	Bloomfield	Bloomfield	Rockdale	Conneaut	Summerhill
QUADRANGLE	Cambridge Springs	Cambridge Springs	Cambridge Springs	Harmonsburg	Harmonsburg	Lake Canadohta	Lake Canadohta	Millers Station	Linesville	Linesville
LATITUDE	15,000 ft. S 41°50'00"	3,850 ft. S 41°50'00"	4,950 ft. S 41°50'00"	10,720 ft. S 41°42'30"	7,000 ft. S 41°42'30"	3,400 ft. S 41°47'30"	11,500 ft. S 41°50'00"	5,300 ft. S 41°50'00"	14,890 ft. S 41°45'00"	12,780 ft. S 41°45'00"
LONGITUDE	1,250 ft. W 80°00'00"	600 ft. W 80°00'00"	4,600 ft. W 80°02'30"	10,900 ft. W 80°20'00"	10,000 ft. W 80°20'00"	7,400 ft. W 79°50'00"	9,850 ft. W 79°50'00"	9,250 ft. W 79°57'30"	9,000 ft. W 80°22'30"	3,780 ft. W 80°22'30"
DATE COMPLETED	6-4-85	7-13-85	6-21-85	6-13-85	6-5-85	6-19-85	6-12-85	7-22-85	7-17-85	8-2-85
ELEVATION	1150 GR	1460 GR	1150 GR	1186 GR	1228 GR	1420 GR	1640 GR	1300 GR	1185 GR	1194 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/FDC: 0-2320 GR/OIL: 430-3430 GR/CNL: 2500-4208						GR/DBC: 4510-4750			
TULLY LIMESTONE	2522-	2786	2420-	2500-	2511-	2986-	3163-	2622-	2384-	2400-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2734-	3003-	2628-	2659-	2669-	3218-	3390-	2842-	2541-	2558-
ORISKANY SANDSTONE RIDGELEY SANDSTONE				2856-	2864-				2747-	2759-
SILURIAN-DEVONIAN CARBONATES	2924-	3192-	2835-	2866-	2870-			3100-	2755-	2766-
SALINA GROUP LOCKPORT DOLOMITE	2996- 3644-	3313- 3776-	2955- 3460-	3564- 3628-	3578- 3641-				3440- 3504-	3448- 3512-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3862- 3937-	4100- 4177-	3745- 3828-	3918- 3971-	3931- 3982-	4406-	4564-	4014-	3795- 3845-	3803- 3854-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3978- 4096- 4140-	4201- 4343- 4380-	3852- 3987- 4031-	4016- 4111- 4188-	4028- 4122- 4201-	4455- 4572- 4611-	4610- 4716- 4766-	4026- 4200-	3886- 3979- 4057-	3894- 3937- 4067-
QUEENSTON FORMATION	4154-	4392-	4043-	4185-	4210-	4632-	4780-	4212-	4066-	4074-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4006-4093	4291-4339	3905-3976	4038-4193	4052-4208	4501-4550	4645-4702	4095-4155	3909-4065	3921-4071
TOTAL DEPTH	4260	4490	4100	4290	4315	4785	4910	4350	4170	4478
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	119 Mcf AF 1,230 psi/168 hrs. development Rockdale field	119 Mcf AF 1,010 psi/48 hrs. development Rockdale field	103 Mcf AF 1,220 psi/96 hrs. development Cambridge Springs field	75 Mcf AF, 1 Bbl. 1,210 psi/74 hrs. development Carlson pool Conneaut field	35 Mcf AF, 1 Bbl. 1,390 psi/48 hrs. development Carlson pool Conneaut field	300 Mcf AF 1,200 psi/48 hrs. development Athens field	200 Mcf AF 1,100 psi/48 hrs. development Dutch Hill pool Athens field	2,000 Mcf AF 1,250 psi/72 hrs. development Rockdale field	581 Mcf AF 1,105 psi/115 hrs. development Blood pool Conneaut field	1,017 Mcf AF 1,130 psi/126 hrs. development Indian Springs pool Conneaut field

Figure 33. *(Continued).*

COUNTY Permit Number	Crawford 039-22441	Crawford 039-22446	Crawford 039-22447	Crawford 039-22448	Crawford 039-22464	Crawford 039-22465	Crawford 039-22467	Crawford 039-22470	Crawford 039-22492	Erie 049-21700
NAME OF WELL	N. Emmanual (Leonard #2)	Batchelor #1	Landers #1	Kotapish #1	M. Paris #1	J. & E. Miller #2	Oumas #1	James Henderson #1	William Cummings #1	Roscoe L. & Marilyn Mitchell #1
OPERATOR	Mitchell Energy Corporation	Meridian Exploration #282	Meridian Exploration #284	Meridian Exploration #181	Mitchell Energy Corporation	Mark Resources Corporation	Meridian Exploration #286	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	N.E.A. Cross Company
TOWNSHIP	Summerhill	Cambridge	Rockdale	Rockdale	Conneaut	Wayne	Cambridge	Fairfield	Fairfield	LeBoeuf
QUADRANGLE	Linesville	Cambridge Springs	Millers Station	Millers Station	Linesville	Sugar Lake	Cambridge Springs	Cochranton	New Lebanon	Cambridge Spgs, NE
LATITUDE	14,200 ft. S 41°45'00"	2,850 ft. S 41°50'00"	7,550 ft. S 41°47'30"	10,350 ft. S 41°47'30"	7,330 ft. S 41°45'00"	14,300 ft. S 41°35'00"	4,150 ft. S 41°47'30"	9,600 ft. S 41°32'30"	2,400 ft. S 41°30'00"	1,300 ft. S 41°55'00"
LONGITUDE	2,280 ft. W 80°22'30"	3,700 ft. W 80°02'30"	6,600 ft. W 79°57'30"	9,700 ft. W 79°57'30"	8,950 ft. W 80°22'30"	4,150 ft. W 79°55'00"	11,150 ft. W 80°00'00"	5,900 ft. W 80°02'30"	9,850 ft. W 80°02'30"	3,950 ft. W 80°00'00"
DATE COMPLETED	7-25-85	6-13-85	6-27-85	6-11-85	7-9-85	7-20-85	7-14-85	7-12-85	8-14-85	11-24-81
ELEVATION	1210 GR	1145 GR	1325 GR	1390 GR	1500 GR	1603 GR	1415 GR	1310 GR	1420 GR	1410 GR
LOGS RECEIVED AND LOGGED INTERVALS		GR/LTD: 1-4117 OLL/GR: 2430-4134	GR/FOC/CNL: 0-4480 SNP: 418-3712 GR/OIL: 418-4502							OBC/GR: 2400-4154
TULLY LIMESTONE	2427-	2426-	2786-	2864-	2319-	3755-	2781-	3325-	3540-	2460-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2585-	2640-	2996-	3074-	2480-	3974-	2992-	3518-	3788-	2678-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	2788-				2681-	4120		3692-	3905-	2940-
SILURIAN-DEVONIAN CARBONATES	2796-	2846-	3170-	3257-	2687-	4145-	3181-	3714-	3931-	2960-
SALINA GROUP LOCKPORT DOLOMITE	3479- 3544-	2918- 3534-	3242- 3912-	3274- 3911-	3356- 3421-	4302- 4938-	3301- 3837-	4010- 4462-	4245- 4690-	3014- 3548-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3833- 3886-	3794- 3848-	4158- 4167-	4223- 4280-	3690- 3760-	5206- 5326-	4150- 4237-	4820- 4878-	5055- 5119-	3805- 3866-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3927- 4015- 4098-	3886- 4008- 4052-	4258- 4356- 4420-	4305- 4444- 4486-	3800- 3885- 3973-	5408- 5522- 5554-	4258- 4405- 4442-	4933- 5082- 5114-	5179- 5330- 5359-	3914- 4024- 4062-
QUEENSTON FORMATION	4107-	4062-	4433-	4501-	3982-	5568-	4454-	5131-	5370-	4070-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3945-4104	3934-3975	4330-4371	4375-4422	3829-3977	5428-5519	4321-4387	5062-5130	5198-5308	3898-4024
TOTAL DEPTH	4218	4160	4538	4614	4150	5668	4552	5184	5446	4140
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	35 Mcf AF 810 psi/48 hrs. development Indian Springs pool Conneaut field	84 Mcf AF 1,210 psi/96 hrs. development Cambridge Springs field	42 Mcf AF 1,210 psi/96 hrs. development Zirkle pool Richmond Township field	60 Mcf AF 1,235 psi/168 hrs. development Zirkle pool Richmond Township field	431 Mcf AF 1,220 psi/190 hrs. development Indian Springs pool Conneaut field	500 Mcf AF 1,480 psi/72 hrs. development Wilson Mills pool Lake Creek field	133 Mcf AF 987 psi/48 hrs. development Cambridge pool Cambridge Springs field	238 Mcf AF 1,405 psi/48 hrs. development Kantz Corners field	500 Mcf AF 1,100 psi/48 hrs. development Kantz Corners field	2,800 Mcf AF 1,200 psi/48 hrs. development Mill Village field

COUNTY Permit Number	Erie 049-21703	Erie 049-21706	Erie 049-21709	Erie 049-21764	Erie 049-21814	Erie 049-21830	Erie 049-21865	Erie 049-21867	Erie 049-21924	Erie 049-21972
NAME OF WELL	E. L. OiCola #1	E. L. OiCola #2	Herbert Miller #1	Robert Harrison #1	Betty Johnson #1	William Fairchild #1	Oonald Giddings #1	J. L. Merritt #1	William Bolte #1	William Bolte #2
OPERATOR	N.E.A. Cross Company	N.E.A. Cross Company	Kaltsas Oil Company, Inc.	N.E.A. Cross Company	Goe Pro, Incorporated	N.E.A. Cross Company	Goe Pro, Inc. Paco, Inc., OBA	Goe Pro, Incorporated	Goe Pro, Inc. Pencol Energy, OBA	Goe Pro, Inc. Pencol Energy, DBA
TOWNSHIP	LeBoeuf	LeBoeuf	Greenfield	LeBoeuf	Conneaut	LeBoeuf	Elk Creek	Conneaut	Elk Creek	Elk Creek
OUADRANGLE	Cambridge Spgs, NE	Cambridge Spgs, NE	Wattsburg	Cambridge Spgs, NE	Beaver Center	Waterford	Albion	Albion	Albion	Albion
LATITUDE	2,250 ft. S 41°55'00"	3,450 ft. S 41°55'00"	5,830 ft. S 42°07'30"	1,450 ft. S 41°55'00"	100 ft. S 41°52'30"	14,300 ft. S 41°55'00"	4,920 ft. S 41°55'00"	7,950 ft. S 41°55'00"	2,050 ft. S 41°55'00"	1,750 ft. S 41°55'00"
LONGITUDE	1,800 ft. W 80°00'00"	2,000 ft. W 80°00'00"	8,090 ft. W 79°47'30"	6,300 ft. W 80°00'00"	9,450 ft. W 80°22'30"	1,400 ft. W 79°57'30"	3,240 ft. W 80°17'30"	5,800 ft. W 80°17'30"	1,650 ft. W 80°20'00"	75 ft. W 80°20'00"
DATE COMPLETED	11-21-81	12-2-81	4-16-82	12-9-81	8-23-82	3-31-82	5-24-82	4-12-82	4-24-82	5-13-82
ELEVATION	1290 GR	1270 GR	1370 GR	1460 GR	862 GR	1250 GR	1115 GR	1105 GR	976 GR	1021 GR
LOGS RECEIVED AND LOGGED INTERVALS			OBC/GR: 0-3617		GR: 3000-3359 FOC: 1700-3376	OBC/GR: 2640-4206	GR: 3200-3487 FOC: 1950-3602		GR: 3100-3379 FOC: 1750-3416	GR: 3200-3441 FDC: 1800-3496
TULLY LIMESTONE	2394-	2452-	2100-	2558-	1740-		1974-	1980-	1798-	1844-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2610-	2676-	2334-	2780-	1910-	2686-	2166-	2170-	1986-	2032-
ORISKANY SANDSTONE RIDGELEY SANDSTONE						2946-	2432-		2266-	2305-
SILURIAN-DEVONIAN CARBONATES			2578-		2179-	2959-	2450-		2286-	2330-
SALINA GROUP LOCKPORT DOLOMITE			2646- 3054-		2254- 2817-	3006- 3556-	2514- 3050-	2764- 3024-	2348- 2884-	2388- 2934-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3794-	3848-	3298- 3354-	3964-	3067- 3119-	3868- 3874-	3301- 3352-	3251- 3358-	3138- 3186-	3184- 3235-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3826- 3954- 3994-	3880- 4004- 4050-	3377- 3492- 3534-	3994- 4100- 4160-	3150- 3233- 3308-	3897- 4038- 4076-	3390- 3469- 3530-	3402- 3555- 3563-	3221- 3291- 3368-	3269- 3333- 3428-
QUEENSTON FORMATION	4002-	4058-	3548-	4168-	3324-	4092-	3553-	3563-	3391-	3435-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3888-3932	3922-3998	3404-3541	4028-4098	3170-3230	3952-4018	3414-3464	3464-3507	3259-3326	3291-3382
TOTAL DEPTH	4100	4120	3617	4230	3392	4200	3620	3563	3424	3512
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	3,500 Mcf AF 1,200 psi/48 hrs. development Mill Village field	4,000 Mcf AF ? psi/48 hrs. development Mill Village field	200 Mcf AF 500 psi/48 hrs. development Hornby pool North East field	2,000 Mcf AF 1,120 psi/48 hrs. development Mill Village field	1,100 Mcf AF 1,050 psi/48 hrs. development Bushnell-Lexington pool Conneaut field	4,000 Mcf AF 1,180 psi/48 hrs. development Mill Village field	100 Mcf AF 500 psi/48 hrs. development Lundys Lane pool Conneaut field	350 Mcf AF 1,020 psi/24 hrs. development Lundys Lane pool Conneaut field	450 Mcf AF 1,050 psi/48 hrs. development Lundys Lane pool Conneaut field	250 Mcf AF 900 psi/48 hrs. development Lundys Lane pool Conneaut field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-21973	Erie 049-21996	Erie 049-22020	Erie 049-22021	Erie 049-22033	Erie 049-22034	Erie 049-22043	Erie 049-22044	Erie 049-22052	Erie 049-22056
NAME OF WELL	Goe Pro, Inc. (Kuzma) #2	Kenneth Rogers #1	Goe Pro, Inc. (Sydow) #1	J. R. Wroblewski #2	Matthew Stickner #1	Vergil Taylor #1	James Klobusnik #1	James Klobusnik #2	Robert & Evelyn Darrow #1	George Kean #1
OPERATOR	Goe Pro, Inc. Pencol Energy, DBA	Goe Pro, Inc. Pencol Energy, DBA	Goe Pro, Inc. Pencol Energy, DBA	Kaltsas Oil Company, Inc.	Goe Pro, Inc. Pencol Energy, DBA	Goe Pro, Inc. DBA Pencol Energy	Goe Pro, Inc. DBA Pencol Energy	Goe Pro, Inc. DBA Pencol Energy	S & M Resources Corporation	Goe Pro, Inc. Pencol Energy, DBA
TOWNSHIP	Elk Creek	Elk Creek	Elk Creek	Venango	Elk Creek	Elk Creek	Elk Creek	Elk Creek	Venango	Elk Creek
QUADRANGLE	Albion	Albion	Albion	Wattsburg	Albion	Albion	Albion	Albion	Hammett	Albion
LATITUDE	3,440 ft. S 41°55'00"	1,200 ft. S 41°55'00"	12,000 ft. S 41°57'30"	1,150 ft. S 42°05'00"	600 ft. S 41°55'00"	4,250 ft. S 41°55'00"	5,150 ft. S 41°55'00"	4,440 ft. S 41°55'00"	12,600 ft. S 42°05'00"	9,500 ft. S 41°57'30"
LONGITUDE	9,380 ft. W 80°17'30"	5,400 ft. W 80°17'30"	10,150 ft. W 80°15'00"	3,180 ft. W 79°47'30"	1,300 ft. W 80°20'00"	5,050 ft. W 80°17'30"	9,500 ft. W 80°17'30"	8,100 ft. W 80°17'30"	3,650 ft. W 79°52'30"	9,980 ft. W 80°15'00"
DATE COMPLETED	5-2-82	6-18-82	7-10-82	2-6-84	7-12-82	6-12-82	9-28-82	6-23-82	7-12-82	7-4-82
ELEVATION	1058 GR	1100 GR	1104 GR	1445 GR	970 GR	1102 GR	1071 GR	1075 GR	1410 GR	1084 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR: 3200-3464 FDC: 1900-3534	GR: 3300-3595 FDC: 1900-3606	GR: 3300-3560 FDC: 1900-3606		GR: 3100-3384 FDC: 1700-3410	GR: 3300-3558 FDC: 1800-3604	FDC/GR: 1950-3523 GR: 3250-3507	GR: 3250-3553	FDC/CNL/GR: 277-3812 LL/GR: 347-3804 Laser: 1200-3750	GR: 3250-3575 FDC: 1800-3658
TULLY LIMESTONE	1910-	1948-	1924-	2210-	1782-	1964-	1944-	1944-	2215-	1900-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2098-	2138-	2128-	2437-	1972-	2156-	2132-	2132-	2450-	2100-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	2366-	2406-	2410-	2621-	2244-					2382-
SILURIAN-DEVONIAN CARBONATES	2390-	2436-	2430-		2270-	2413-	2403-	2324-	2690-	2412-
SALINA GROUP LOCKPORT DOLOMITE	2454- 2992-	2490- 3040-	2492- 3018-	2644- 3157-	2330- 2870-	2504- 3034-	2478- 3001-	2478- 3018-	2774- 3236-	2462- 2996-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3240- 3294-	3290- 3341-	3264- 3316-	3400- 3468-	3126- 3172-	3284- 3337-	3248- 3303-	3267- 3322-	3478- 3540-	3242- 3297-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3330- 3411- 3472-	3377- 3489- 3518-	3353- 3432- 3494-	3502- 3618- 3646-	3208- 3283- 3350-	3372- 3450- 3532-	3339- 3425- 3500-	3358- 3435- 3512-	3590- 3702- 3728-	3332- 3412- 3472-
QUEENSTON FORMATION	3495-	3541-	3518-	3662-	3371-	3538-	3506-	3518-	3741-	3495-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3325-3379	3420-3480	3375-3429	3633-3759	3241-3279	3398-3448	3390-3454	3393-3433	3609-3734	3356-3450
TOTAL DEPTH	3564	3622	3622	3775	3420	3620	3550	3578	3820	3658
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	250 Mcf AF 900 psi/48 hrs. development Lundys Lane pool Conneaut field	165 Mcf AF 600 psi/48 hrs. development Lundys Lane pool Conneaut field	500 Mcf AF 1,050 psi/48 hrs. development Lundys Lane pool Conneaut field	100 Mcf AF 1,050 psi/45 hrs. development Little Hope pool North East field	750 Mcf AF 1,100 psi/48 hrs. development Bushnell-Lexington pool Conneaut field	40 Mcf AF 100 psi/48 hrs. development Lundys Lane pool Conneaut field	30 Mcf AF 150 psi/48 hrs. development Lundys Lane pool Conneaut field	40 Mcf AF 100 psi/48 hrs. development Lundys Lane pool Conneaut field	1,800 Mcf AF 1,120 psi/? hrs. extension Dennee pool Phillipsville field	700 Mcf AF 1,075 psi/48 hrs. development Lundys Lane pool Conneaut field

COUNTY Permit Number	Erie 049-22057	Erie 049-22061	Erie 049-22095	Erie 049-22096	Erie 049-22100	Erie 049-22136	Erie 049-22140	Erie 049-22143	Erie 049-22144	Erie 049-22145
NAME OF WELL	John Morrison #1	Charles Merritt #1	R. Eugene & Zelda Neher #2	William Rosecran #1	John H. Bauer #1	Joseph Risjan #2	Clark's Car Wash #1	Frank Aylsworth #1	Mike Dolgos #2	Kevin Michael #2
OPERATOR	Goe Pro, Inc. Pencol Energy, DBA	Goe Pro, Inc. Pencol Energy, DBA	Goe Pro, Incorporated	Goe Pro, Inc. OBA Pencol Energy	S & M Resources Corporation	NRM Petroleum Corporation	Donald W. Clark	Goe Pro, Inc. DBA Pencol Energy	Goe Pro, Inc. DBA Pencol Energy	Goe Pro, Inc. OBA Pencol Energy
TOWNSHIP	Elk Creek	Elk Creek	Conneaut	Conneaut	Summit	Waterford	Millcreek	Elk Creek	Elk Creek	Elk Creek
QUADRANGLE	Albion	Albion	East Springfield	Beaver Center	Erie South	Waterford	Swanville	Albion	Conneautville	Albion
LATITUDE	10,640 ft. S 41°55'00"	12,550 ft. S 41°55'00"	14,000 ft. S 41°55'00"	2,800 ft. S 41°52'30"	13,000 ft. S 42°02'30"	11,170 ft. S 42°00'00"	2,750 ft. S 42°05'00"	6,100 ft. S 41°55'00"	1,450 ft. S 41°52'30"	7,700 ft. S 41°55'00"
LONGITUDE	1,700 ft. W 80°17'30"	2,700 ft. W 80°17'30"	1,550 ft. W 80°25'00"	10,900 ft. W 80°22'30"	3,500 ft. W 80°00'00"	6,100 ft. W 79°55'00"	1,900 ft. W 80°10'00"	800 ft. W 80°17'30"	9,950 ft. W 80°15'00"	800 ft. W 80°17'30"
DATE COMPLETED	6-29-82	7-10-82	9-9-82	9-2-82	7-24-82	8-15-82	3/?/85	8-6-82	9-4-82	8-6-82
ELEVATION	1081 GR	1104 GR	891 GR	860 GR	1360 GR	1430 GR	765 GR	1138 GR	1241 GR	1135 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR: 3200-3492 FOC: 1850-3480	GR: 3350-3655 FOC: 2000-3658	GR: 3100-3413 FOC: 1750-3418	GR: 3100-3357	FOC/CNL/GR: 29-3751 LL/GR: 324-3746 Laser: 2080-3720	FOC/GR: 2250-4058 IL: 2650-4066 Tracer: 2250-4058		GR: 3300-3595 FOC/GR: 1900-3640 GO: 2075-3646	GR: 3500-3785 FDC/GR: 2200-3783	GR: 3300-3586 FOC/GR: 2000-3692
TULLY LIMESTONE	1890-	2028-	1758-		2108-	2290-		2000-	2223-	2014-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2086-	2218-	1925-	1920-	2336-	2516-		2192-	2414-	2206-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	2376-	2482-	2200-	2190-	2588-		1750-	2463-	2670-	2468-
SILURIAN-DEVONIAN CARBONATES	2404-	2498-	2240-	2204-	2608-	2770-		2474-	2676-	2484-
SALINA GROUP LOCKPORT DOLOMITE	2458- 2950-	2556- 3092-	2274- 2813-	2264- 2816-	2692- 3200-	2884- 3396-		2536- 3080-	2747- 3292-	2551- 3091-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3229- 3282-	3360- 3412-	3107- 3152-	3084- 3136-	3464- 3512-	3664- 3721-		3334- 3386-	3552- 3604-	3350- 3402-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3320-	3452- 3527- 3610-	3184- 3266- 3288-	3170- 3252- 3276-	3552- 3632- 3702-	3756- 3872- 3912-		3426- 3502- 3534-	3640- 3724- 3750-	3440- 3521- 3580-
QUEENSTON FORMATION		3616-	3302-	3283-	3712-	3922-		3551-	3764-	3605-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Oriskany	Medina	Medina	Medina
PRODUCING INTERVAL	3351-3426	3485-3519	3224-3298	3210-3250	3574-3708	3785-3869	1760	3457-3498	3680-3755	3479-3519
TOTAL DEPTH	3558	3680	3434	3390	3740	4066	1760	3650	3799	3713
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Oriskany	Queenston	Queenston	Queenston
RESULTS	1,100 Mcf AF 1,100 psi/48 hrs. development Lundys Lane pool Conneaut field	750 Mcf AF 1,100 psi/48 hrs. development Lundys Lane pool Conneaut field	250 Mcf AF 600 psi/48 hrs. development Bushnell-Lexington pool Conneaut field	400 Mcf AF 750 psi/48 hrs. development Busnell-Lexington pool Conneaut field	1,460 Mcf AF 1,120 psi/? hrs. development Talcott pool Erie field	1,255 Mcf AF 1,100 psi/4 days development Talcott pool Erie field	2,000 Mcf Nat. 700 psi/48 hrs. New pool discovery Car Wash pool Erie field	1,500 Mcf AF 1,150 psi/48 hrs. development Lundys Lane pool Conneaut field	500 Mcf AF 750 psi/48 hrs. development Pageville pool Conneaut field	750 Mcf AF 1,000 psi/48 hrs. development Lundys Lane pool Conneaut field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-22146	Erie 049-22160	Erie 049-22165	Erie 049-22180	Erie 049-22181	Erie 049-22186	Erie 049-22188	Erie 049-22201	Erie 049-22204	Erie 049-22214
NAME OF WELL	Harry Mosier #1	Andrew Wnek #1	James Wiley #1	Goe Pro, Inc. (Sydow) #2	Goe Pro, Inc. (Sydow) #1	Herman Endrulas #4	Odessa Moon #1	Russell & Marie Raybuck #1	Shirley Hess- Williams #1	Joseph Chromik #1
OPERATOR	Goe Pro, Inc. OBA Pencol Energy	Goe Pro, Inc. OBA Paco, Inc.	Goe Pro, Incorporated	Goe Pro, Inc. OBA Pencol Energy	Goe Pro, Inc. OBA Pencol Energy	Goe Pro, Incorporated	Goe Pro, Incorporated	S & M Resources Corporation	S & M Resources Corporation	Goe Pro, Incorporated
TOWNSHIP	Elk Creek	Elk Creek	Elk Creek	Elk Creek	Elk Creek	Elk Creek	Elk Creek	Greene	Summit	Elk Creek
QUADRANGLE	Albion	Albion	Edinboro North	Albion	Albion	Edinboro North	Albion	Hammett	Erie South	Albion
LATITUDE	7,600 ft. S 41°55'00"	13,000 ft. S 41°55'00"	13,000 ft. S 41°55'00"	10,450 ft. S 41°57'30"	12,000 ft. S 41°57'30"	13,000 ft. S 41°55'00"	14,700 ft. S 41°55'00"	9,900 ft. S 42°02'30"	13,550 ft. S 42°05'00"	12,400 ft. S 41°55'00"
LONGITUDE	3,900 ft. W 80°17'30"	800 ft. W 80°15'00"	9,800 ft. W 80°12'30"	250 ft. W 80°17'30"	350 ft. W 80°17'30"	8,300 ft. W 80°12'30"	4,200 ft. W 80°15'00"	11,050 ft. W 79°27'30"	5,400 ft. W 80°00'00"	4,200 ft. W 80°15'00"
DATE COMPLETED	9-4-82	8-28-82	8-23-82	8-20-82	8-25-82	9-18-82	9-17-82	7-30-82	5-29-83	9-8-82
ELEVATION	1142 GR	1268 GR	1286 GR	1085 GR	1099 GR	1272 GR	1210 GR	1232 GR	1165 GR	1213 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR: 3300-3632 FOC/GR: 1950-3686	GR: 3500-3837 FDC/GR: 2400-3869	GR: 3500-3809 FOC: 3500-3913	GR: 3200-3518 FOC: 1850-3546	GR: 3200-3525 FOC: 1900-3568	GR: 3550-3864 FOC: 2200-3865	GR: 3500-3788 FDC: 2100-3805	FOC/CNL/GR: 296-3635 LL/GR: 300-3632 Laser: 2200-3570		GR: 3450-3729 FOC/GR: 2300-3799
TULLY LIMESTONE	2018-		2246-	1886-	1910-	2238-	2162-	1957-	1814-	
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2210-	2419-	2440-	2080-	2106-	2434-	2354-	2184-	2040-	2344-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	2466-	2676-		2372-	2394-	2698-	2614-	2440-	2237-	
SILURIAN-DEVONIAN CARBONATES	2480-	2696-	2636-	2398-	2420-	2729-	2630-	2458-	2290-	2676- 2540-
SALINA GROUP LOCKPORT DOLOMITE	2546- 3090-	2744- 3294-	2698- 3331-	2450- 2980-	2470- 3004-	2766- 3330-	2690- 3234-	2546- 3056-	2394- 2860-	3204-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3354- 3406-	3552- 3606-	3571- 3624-	3227- 3278-	3255- 3306-	3581- 3628-	3482- 3536-	3320- 3364-	3121- 3178-	3483- 3540-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3442- 3523- 3544-	3646- 3760- 3805-	3659- 3756- 3824-	3319- 3392- 3456-	3342- 3427- 3498-	3662- 3790- 3818-	3570- 3655- 3734-	3411- 3478- 3547-	3198- 3365-	3574- 3657- 3738-
QUEENSTON FORMATION	3552-	3812-	3832-	3479-	3506-	3836-	3741-	3564-	3376-	3744-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3464-3550	3658-3754	3691-3741	3330-3385	3360-3412	3700-3782	3608-3652	3416-3561	3259-3375	3603-3652
TOTAL DEPTH	3702	3895	3956	3580	3584	3882	3838	3637	3433	3802
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	450 Mcf AF 1,050 psi/48 hrs. development Lundys Lane pool Conneaut field	750 Mcf AF 1,050 psi/48 hrs. development Pageville pool Conneaut field	900 Mcf AF 1,100 psi/48 hrs. development Pageville pool Conneaut field	750 Mcf AF 1DD psi/48 hrs. development Lundys Lane pool Conneaut field	90D Mcf AF 1,100 psi/48 hrs. development Lundys Lane pool Conneaut field	2.3 Mcf AF 1,075 psi/48 hrs. development Pageville pool Conneaut field	1.1 Mcf AF 100 psi/48 hrs. development Pageville pool Conneaut field	1,960 Mcf AF 1,065 psi/48 hrs. development Goddard pool Erie field	1,250 Mcf AF 1,040 psi/72 hrs. extension Goddard pool Erie field	800 Mcf AF 1,050 psi/48 hrs. development Pageville pool Conneaut field

COUNTY Permit Number	Erie 049-22253	Erie 049-22257	Erie 049-22275	Erie 049-22405	Erie 049-22410	Erie 049-22440	Erie 049-22470	Erie 049-22574	Erie 049-22615	Erie 049-22617
NAME OF WELL	Frank Zeaman #1	Frank D. Johnson #1	Yazembiak #1	W. Kean #1	Silas W. Coon #3	J. Galuski #1	Edward Hopkins #1	Andrew & Mary Kula #1	Calvin I. Neimeyer #4	Joseph Risjan #3
OPERATOR	Goe Pro, Inc. OBA Pencol Energy	Goe Pro, Incorporated	Goe Pro, Incorporated	Envirogas, Incorporated	N.E.A. Cross Company	Envirogas, Incorporated	C & C Troyer Brothers #81	N.E.A. Cross Company	NRM Petroleum Corporation	NRM Petroleum Corporation
TOWNSHIP	Elk Creek	Conneaut	Elk Creek	Elk Creek	LeBoeuf	Elk Creek	Waterford	Waterford	Waterford	Waterford
QUADRANGLE	Albion	East Springfield	Conneautville	Albion	Waterford	Albion	Waterford	Cambridge Spgs, NE	Waterford	Waterford
LATITUDE	13,250 ft. S 41°55'00"	9,500 ft. S 41°55'00"	1,000 ft. S 41°52'30"	4,750 ft. S 41°55'00"	4,300 ft. S 41°55'00"	13,150 ft. S 41°57'30"	8,050 ft. S 41°57'30"	2,300 ft. S 41°57'30"	8,265 ft. S 41°57'30"	8,450 ft. S 42°00'00"
LONGITUDE	7,150 ft. W 80°17'30"	50 ft. W 80°25'00"	1,950 ft. W 80°17'30"	11,175 ft. W 80°17'30"	11,300 ft. W 79°57'30"	5,650 ft. W 80°15'00"	6,900 ft. W 79°57'30"	9,850 ft. W 80°00'00"	3,185 ft. W 79°57'30"	6,250 ft. W 79°55'00"
DATE COMPLETED	9-28-82	8-25-82	10-5-82	12-4-82	2-6-83	11-10-82	2-1-83	2-2-83	3-6-83	2-17-83
ELEVATION	1153 GR	872 GR	1179 GR	1140 GR	1225 GR	1135 GR	1180 GR	1300 GR	1200 GR	1410 GR
LOGS RECEIVED AND LOGGED INTERVALS	FOC/GR: 2000-3710	FOC/GR: 1650-3318 GR: 2950-3300	CNL/GR: 2150-3858 GR: 3600-3857		OBC/GR: 2300-4110		FOC/GR: 2000-3834	OBC/GR: 2300-3932	FOC/GR: 2050-3876 IL: 2050-3879 PCL: 3605-3691	FOC/GR: 2250-4014 IL: 2250-4017
TULLY LIMESTONE	2060-	1696-	2226-	1990-	2389-	1962-	2087-	2266-	2113-	2284-
ONONDAGA LIMESTONE MUNTERSVILLE CHERT	2247-	1864-	2416-	2180- Bois Blanc 2370-	2606-	2159- Bois Blanc 2362-	2306-	2494-	2336-	2518-
ORISKANY SANDSTONE RIDGELEY SANDSTONE		2158-	2674-	2442-		2445-			2590-	
SILURIAN-DEVONIAN CARBONATES	2438-	2176-	2684-		2870-	2452-	2590-	2752-	2596-	2762-
SALINA GROUP LOCKPORT DOLOMITE	2590- 3148-	2234- 2786-	2750- 3306-		2932- 3466-	2564- 3056-	2686- 3214-	2830- 3298-	2686- 3258-	2858- 3394-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3406- 3452-	3036- 3086-	3567- 3616-		3736- 3790-	3300- 3350-	3480- 3532-	3582- 3636-	3515- 3570-	3644- 3698-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3486- 3604- 3650-	3128- 3208- 3272-	3650- 3766- 3818-		3825- 3950- 3992-	3376- 3500- 3524-	3568- 3685- 3727-	3658- 3786- 3830-	3594- 3722- 3765-	3720- 3850- 3890-
QUEENSTON FORMATION	3658-	3290-	3826-		4000-	3552-	3735-	3838-	3774-	3900-
PRODUCING FORMATION	Medina	Medina	Medina	Oriskany	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3522-3602	3140-3199	3704-3767	2442-2447	3863-3933	3397-3548	3614-3651	3734-3776	3605-3691	3773-3827
TOTAL DEPTH	3740	3330	3870	2447	4110	3659	3836	3932	3883	4021
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Oriskany	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	350 Mcf AF 950 psi/48 hrs. development Lundys Lane pool Conneaut field	4,500 Mcf AF 1,175 psi/48 hrs. development Bushnell-Lexington pool Conneaut field	950 Mcf AF 1,100 psi/48 hrs. development Lundys Lane pool Conneaut field	4,000 Mcf AF 850 psi/240 hrs. extension Rogers pool Conneaut field	200 Mcf AF 900 psi/48 hrs. development Mill Village field	20 Mcf AF 935 psi/48 hrs. development Pageville pool Conneaut field	1,500 Mcf AF 1,050 psi/168 hrs. development Waterford pool LeBoeuf field	2,100 Mcf AF 1,100 psi/48 hrs. development Swails pool Orumiin field	1,639 Mcf AF 1,100 psi/4 days development Waterford pool LeBoeuf field	1,237 Mcf AF 1,050 psi/4 days development Talcott pool Erie field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-22748	Erie 049-22749	Erie 049-22750	Erie 049-22767	Erie 049-22917	Erie 049-22936	Erie 049-23068	Erie 049-23112	Erie 049-23153	Erie 049-23164
NAME OF WELL	Carl Little #2	Lloyd Schwab #4	Joseph Wisniewski #3	Archie Haines #1	Peter George Est. #1	Watral #1	Irwin Nathan #4	Lewis Dove #2	Wise #7	Frank & Rhoda Jennes #1
OPERATOR	Kaltsas Oil Company, Inc.	Kaltsas Oil Company, Inc.	Kaltsas Oil Company, Inc.	Kaltsas Oil Company, Inc.	N.E.A. Cross Company	Northwest Natural Gas Company	N.E.A. Cross Company	C & C Troyer Brothers #86	N.E.A. Cross Company	Northwest Natural Gas Company
TOWNSHIP	Venango	Greenfield	Greenfield	Greenfield	Waterford	Conneaut	LeBoeuf	Waterford	LeBoeuf	Elk Creek
QUADRANGLE	Wattsburg	Wattsburg	Wattsburg	Wattsburg	Cambridge Spgs, NE	Beaver Center	Cambridge Spgs, NE	Waterford	Waterford	Conneautville
LATITUDE	2,310 ft. S 42°05'00"	13,200 ft. S 42°07'30"	6,300 ft. S 42°07'30"	11,350 ft. S 42°07'30"	11,050 ft. S 42°00'00"	1,950 ft. S 41°52'30"	14,900 ft. S 41°55'00"	150 ft. S 41°57'30"	5,350 ft. S 41°55'00"	8,000 ft. S 41°52'30"
LONGITUDE	900 ft. W 79°50'00"	4,500 ft. W 79°47'30"	5,800 ft. W 79°50'00"	10,700 ft. W 79°47'30"	2,200 ft. W 80°00'00"	250 ft. W 80°22'30"	1,750 ft. W 80°00'00"	600 ft. W 79°57'30"	3,150 ft. W 79°55'00"	4,350 ft. W 80°20'00"
DATE COMPLETED	3-7-84	3-13-84	7-10-84	9-20-83	9-8-83	1-25-84	6-9-84	8-12-83	5-21-84	7-4-84
ELEVATION	1345 GR	1529 GR	1450 GR	1370 GR	1360 GR	1000 GR	1350 GR	1320 GR	1195 GR	1100 GR
LOGS RECEIVED AND LOGGED INTERVALS							DBC/LL/GR: 2125-4174		DBC/CNL/GR:2037-4073	
TULLY LIMESTONE	2134-	2322-	2164-	2138-	2148-	1920-	2518-	2192-	2320-	2096-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2361-	2543-	2404-	2358-	2363-	2096-	2746-	2412-	2544-	2272-
ORISKANY SANDSTONE RIDGELEY SANDSTONE		2854-	2598-		Bois Blanc 2550-			2670-		
SILURIAN-DEVONIAN CARBONATES	2606-					2354-	2985-	2676-	2788-	2528-
SALINA GROUP LOCKPORT DOLOMITE	2836- 3094-	2878- 3104-	2640- 3108-	2630- 2920-		2436- 2964-	3054- 3613-		2866- 3418-	2610- 3056-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3358- 3400-	3514- 3580-	3368- 3434-	3392-		3216-	3870- 3934-	3632-	3684- 3740-	3368-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3450- 3556- 3581-	3603- 3714- 3758-	3463- 3575- 3615-	3405- 3570-		3330-	3969- 4092- 4134-	3662- 3786- 3822-	3775- 3886- 3936-	3492-
QUEENSTON FORMATION	3596-	3724-	3625-	3584-		3426-	4144-	3834-	3948-	3586-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Bois Blanc	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3462-3592	3636-3773	3507-3632	3492-3578	2550-2576	3366-3420	4006-4048	3707-3770	3834-3880	3514-3578
TOTAL DEPTH	3700	3863	3675	3656	2576	3438	4176	3945	4100	3610
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Bois Blanc	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	300 Mcf AF 1,050 psi/72 hrs. development Little Hope pool North East field	200 Mcf AF 1,100 psi/72 hrs. development Little Hope pool North East field	100 Mcf AF 1,050 psi/72 hrs. development Hornby pool North East field	700 Mcf AF 980 psi/48 hrs. development Little Hope pool North East field	9,000 Mcf Nat. 860 psi/? hrs. development Greenley pool Drumlin field	1,000 Mcf AF 910 psi/48 hrs. development Lundys Lane pool Conneaut field	400 Mcf AF 1,000 psi/48 hrs. development Edinboro North field	2,000 Mcf AF 1,150 psi/60 hrs. development Waterford pool LeBoeuf field	1,300 Mcf AF 1,100 psi/48 hrs. development Waterford pool LeBoeuf field	1,100 Mcf AF 960 psi/48 hrs. development Lundys Lane pool Conneaut field

COUNTY Permit Number	Erie 049-23166	Erie 049-23181	Erie 049-23182	Erie 049-23312	Erie 049-23358	Erie 049-23376	Erie 049-23377	Erie 049-23392-P	Erie 049-23423	Erie 049-23428
NAME OF WELL	Himrod #1	Frank Jagta #2	Edward Mientklewicz #1	E.J.M.N. Metzler #1	Roger Niemeyer #1	Frank Jagta #3	Julias Horvath #1	Petrus #1	Gerald Greene #1	Glenn Troyer Farms #6F Burger
OPERATOR	Mitch-Well Energy, Incorporated	C & C Troyer Brothers #89	C & C Troyer Brothers #88	C & C Troyer Brothers #94	Kaltsas Oil Company, Inc.	Troyer Gas & Oil Company	Tetra Energy Group, Limited	U. S. Energy Development Corp.	Gerald S. Greene	Glenn V. Troyer
TOWNSHIP	Waterford	Waterford	Waterford	Washington	Venango	Waterford	Amity	Franklin	Conneaut	LeBoeuf
QUADRANGLE	Waterford	Waterford	Waterford	Cambridge Spgs., NE	Wattsburg	Waterford	Waterford	Edinboro North	Albion	Waterford
LATITUDE	10,100 ft. S 42°00'00"	6,300 ft. S 41°57'30"	10,000 ft. S 41°57'30"	2,500 ft. S 41°55'00"	150 ft. S 42°02'30"	5,400 ft. S 41°57'30"	2,200 ft. S 41°57'30"	7,950 ft. S 41°57'30"	14,780 ft. S 41°55'00"	9,300 ft. S 41°55'00"
LONGITUDE	10,600 ft. W 79°57'30"	10,700 ft. W 79°55'00"	7,400 ft. W 79°57'30"	2,750 ft. W 80°00'00"	7,810 ft. W 79°50'00"	9,800 ft. W 79°55'00"	1,040 ft. W 79°52'30"	4,200 ft. W 80°12'30"	11,320 ft. W 80°20'00"	700 ft. W 79°57'30"
DATE COMPLETED	9-11-83	9-8-83	9-5-83	10-26-83	2-20-84	9-15-84	10-12-83	8-5-84	11-28-83	10-30-83
ELEVATION	1280 GR	1340 GR	1170 GR	1435 GR	1492 GR	1320 GR	1318 GR	1222 GR	984 GR	1205 GR
LOGS RECEIVED AND LOGGED INTERVALS						DBC/GR: 2230-4024		GR/DBC: 1700-3782 GR/DIL: 1699-3782 Laser: 3504-3784		
TULLY LIMESTONE	2085-	2270-	2120-	2522-	2315-	2250-	2336-	2083-		2406-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2310-	2594-	2352-	2743-	2542-	2470-	2570-	2286-	2032-	2579-
ORISKANY SANDSTONE RIDGELEY SANDSTONE		2740-	2620-	3024-	2972-	2716-			2260-	
SILURIAN-DEVONIAN CARBONATES		2750-	2630-	3032-		2734-	2742-	2566-		3000-
SALINA GROUP LOCKPORT DOLOMITE	3080- 3146-				2984- 3334-	2820- 3380-	2876- 3434-	2652- 3138-		3228- 3418-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3472-	3714-	3580-	3920-	3549- 3656-	3632- 3690-	3672-	3392- 3462-	3246-	3704-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3550- 3650- 3720-	3726- 3868- 3910-	3610- 3718- 3772-	3931- 4060- 4120-	3670- 3809- 3840-	3738- 3826- 3882-	3782-	3488- 3552- 3660-	3256- 3364-	3846- 4015-
QUEENSTON FORMATION	3730-	3920-	3782-	4296-	3853-	3890-	3960-	3670-	3450-	4038-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3580-3644	3783-3828	3661-3695	4010-4035	3709-3847	3752-3799	3822-3877	3516-3666	3302-3347	3868-3995
TOTAL DEPTH	3818	4008	3908	4246	3925	4035	4032	3784	3515	4168
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	2,080 Mcf AF 1,120 psi/48 hrs. development Talcott pool Erie field	3,000 Mcf AF 1,100 psi/10 hrs. development Waterford pool LeBoeuf field	2,000 Mcf AF 1,100 psi/24 hrs. development Waterford pool LeBoeuf field	1,750 Mcf AF 1,150 psi/168 hrs. development Edinboro North field	200 Mcf AF 1,050 psi/72 hrs. development Dennee pool Phillipsville field	1,500 Mcf AF 1,100 psi/48 hrs. development LeBoeuf pool Waterford field	4,00 Mcf AF 1,000 psi/24 hrs. development Waterford pool LeBoeuf field	Plugged and abandoned development Franklin Center field	1,000 Mcf AF 980 psi/48 hrs. development Lundys Lane pool Conneaut field	? Mcf AF development Mill Village field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-23493	Erie 049-23531	Erie 049-23559	Erie 049-23577	Erie 049-23606	Erie 049-23614	Erie 049-23623	Erie 049-23625	Erie 049-23629	Erie 049-23672
NAME OF WELL	Louis Kuhns #2	Samuel Faulhaber #2	Clark #1	Alan I. Renkis #2	James & Joan Rhea #4	J. Tech #1	Paul A. Mongera #2	Richard Gaber #3	John Oick #1	Joseph Bilski #1
OPERATOR	N.E.A. Cross Company	N.E.A. Cross Company	Vineyard Oil & Gas Company	Alan I. Renkis	N.E.A. Cross Company	U. S. Energy Development Corp.	NRM Petroleum Corporation	N.E.A. Cross Company	William E. Mitchell	Kaltsas Oil Company, Inc.
TOWNSHIP	Waterford	Waterford	Waterford	Millcreek	LeBoeuf	Venango	LeBoeuf	Waterford	Amity	Venango
QUADRANGLE	Waterford	Waterford	Cambridge Spgs., NE	Swanville	Cambridge Spgs., NE	Wattsburg	Millers Station	Waterford	Union City	Hammett
LATITUDE	5,100 ft. S 42°00'00"	8,900 ft. S 42°00'00"	7,900 ft. S 41°57'30"	1,400 ft. S 42°05'00"	7,550 ft. S 41°55'00"	4,100 ft. S 42°02'30"	5,720 ft. S 41°52'30"	13,450 ft. S 42°00'00"	1,250 ft. S 42°00'00"	3,300 ft. S 42°05'00"
LONGITUDE	9,650 ft. W 79°57'30"	9,600 ft. W 79°55'00"	6,750 ft. W 80°02'30"	9,050 ft. W 80°10'00"	2,900 ft. W 80°00'00"	9,900 ft. W 79°47'30"	6,030 ft. W 79°52'30"	9,950 ft. W 79°55'00"	11,250 ft. W 79°47'30"	7,180 ft. W 79°52'30"
DATE COMPLETED	6-9-84	6-1-84	4-21-84	4-21-84	5-4-84	5-23-84	6-25-84	5-7-84	2-13-84	6-12-84
ELEVATION	1210 GR	1340 GR	1530 GR	725 GR	1420 GR	1580 GR	1610 GR	1380 GR	1305 GR	1356 GR
LOGS RECEIVED AND LOGGED INTERVALS		OBC/GR: 2201-3934			FOC/OBC: 2211-4210	GR: 3800-4140 GR/DLL: 726-4160	GR/OBC: 4280-4592 Repeat section			
TULLY LIMESTONE	2000-	2238-	2161-	1298-	2554-	2552-		2256-	1992-	2110-
ONONDAGA LIMESTONE MUNTERSVILLE CHERT	2228-	2464-	2487-	1500-	2774-	2782-		2488-		2336-
ORISKANY SANDSTONE RIDGELEY SANDSTONE										
SILURIAN-DEVONIAN CARBONATES		2719-	2739-	1795-	3040-	2998-				
SALINA GROUP LOCKPORT DOLOMITE		2814- 3318-	3040- 3556-	1860- 2265-	3104- 3646-	3074- 3550-				2522- 2693-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3410-	3564- 3624-	3764- 3899-	2510- 2570-	3912- 3966-	3796- 3868-	4324-	3678-	3630-	3374-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3460- 3571- 3600-	3647- 3768- 3818-	3914- 4038- 4077-	2585- 2695- 2755-	3989- 4126- 4171-	3902- 4015- 4050-	4363- 4471- 4524-	3710- 3848- 3874-	3650- 3754- 3810-	3408- 3529- 3557-
QUEENSTON FORMATION	3610-	3826-	4083-	2770-	4177-	4063-	4538-	3884-	3820-	3570-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3478-3554	3723-3745	3937-4079	2617-2770	4052-4075	3937-4060	4420-4435	3774-3826	3719-3822	3424-3569
TOTAL DEPTH	3741	3936	4175	2865	4253	4184	4593	3986	3912	3665
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,200 Mcf AF 1,080 psi/48 hrs. development Talcott pool Erie field	3,000 Mcf AF 950 psi/48 hrs. development Talcott pool Erie field	1,100 Mcf AF 1,150 psi/120 hrs. development Reeds Corners field	80 Mcf AF 880 psi/240 hrs. development Charter Oaks pool Erie field	4,000 Mcf AF 900 psi/48 hrs. development Mill Village field	1,714 Mcf AF 1,160 psi/72 hrs. extension Carter Hill field	1,958 Mcf AF 1,095 psi/72 hrs. development New Ireland field	1,000 Mcf AF 1,000 psi/48 hrs. development Talcott pool Erie field	2,500 Mcf AF 1,150 psi/48 hrs. extension Wattsburg pool North East field	1,400 Mcf AF 1,100 psi/72 hrs. development Hornby pool North East field

COUNTY Permit Number	Erie 049-23673	Erie 049-23680	Erie 049-23681	Erie 049-23729	Erie 049-23745	Erie 049-23746	Erie 049-23767	Erie 049-23768	Erie 049-23778	Erie 049-23779
NAME OF WELL	Joseph Bilski #3	D'Connell-Seib #1	Frank O. Seydey #S-1	Elmer Simpson #1	Ray Chapman #1	Stankey #1	Howard Proctor #2	Cynthia Reemsnyder #2	T. & E. Rautine #1	F. & C. Seydey #2
OPERATOR	Kaltsas Oil Company, Inc.	NRM Petroleum Corporation	Old Mountain Gas Company, Inc.	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	Old Mountain Gas Company, Inc.	Old Mountain Gas Company, Inc.
TOWNSHIP	Greenfield	Waterford	Waterford	Waterford	Greene	Waterford	Waterford	Waterford	Waterford	Waterford
QUADRANGLE	Wattsburg	Waterford	Cambridge Spgs, NE	Waterford	Hammett	Waterford	Cambridge Spgs, NE	Waterford	Cambridge Spgs, NE	Cambridge Spgs, NE
LATITUDE	11,950 ft. S 42°07'30"	14,440 ft. S 42°00'00"	3,550 ft. S 42°00'00"	5,450 ft. S 41°57'30"	5,450 ft. S 42°02'30"	5,700 ft. S 42°00'00"	4,200 ft. S 41°57'30"	3,550 ft. S 41°57'30"	3,150 ft. S 42°00'00"	3,150 ft. S 42°00'00"
LONGITUDE	2,940 ft. W 79°50'00"	4,210 ft. W 79°55'00"	6,100 ft. W 80°00'00"	8,000 ft. W 79°57'30"	5,150 ft. W 79°55'00"	900 ft. W 79°55'00"	8,450 ft. W 80°00'00"	9,500 ft. W 79°57'30"	10,900 ft. W 80°00'00"	4,550 ft. W 80°00'00"
DATE COMPLETED	2-13-84	7-24-84	3-24-84	6-23-84	5-11-84	5-14-84	7-28-84	3-8-84	10-18-84	10-22-84
ELEVATION	1334 GR	1441 GR	1436 GR	1180 GR	1395 GR	1525 GR	1310 GR	1230 GR	1425 GR	1365 GR
LOGS RECEIVED AND LOGGED INTERVALS		FDC/T/GR: 2300-4077		FDC/GR: 1990-3777	DBC/T/GR: 2100-3853	DBC/CNL/GR:2099-4144	DBC/LL/GR: 1950-3969	DBC/GR: 419-3780		
TULLY LIMESTONE	2100-	2360-	2231-	2062-	2156-	2396-	2298-	2100-	2155-	2155-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2330-	2584-	2454-	2280-	2384-	2620-	2514-	2320-	2370-	2370-
ORISKANY SANDSTONE RIDGELEY SANDSTONE					2622-			2585-	2640-	2530-
SILURIAN-DEVONIAN CARBONATES		2830-	2616-	2548-	2632-	2880-	2772-	2610-		2640-
SALINA GROUP LOCKPORT DOLOMITE	2888- 3042-	2926- 3478-	2744- 3320-	2664- 3216-	2726- 3228-	2968- 3506-	2850- 3338-	2704- 3232-	2670- 3240-	
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3304- 3348-	3726- 3786-	3515-	3453- 3499-	3480- 3542-	3764- 3823-	3602- 3660-	3501- 3543-	3440-	
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3370- 3500- 3527-	3808- 3948- 3984-	3653- 3812-	3530- 3649- 3694-	3575- 3692- 3732-	3845- 3960- 4016-	3684- 3777- 3856-	3565- 3698- 3736-	3570- 3630-	
QUEENSTON FORMATION	3539-	3994-	3822-	3704-	3742-	4022-	3861-	3745-	3760-	
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Bass Islands
PRODUCING INTERVAL	3402-3538	3851-3920	3694-3821	3581-3626	3638-3676	3886-3940	3736-3776	3634-3667	3641-3700	
TOTAL DEPTH	3650	4077	3923	3779	3860	4146	3995	7345	3860	2644
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Precambrian	Queenston	Bass Islands
RESULTS	210 Mcf AF 1,050 psi/72 hrs. development Hornby pool North East field	1,750 Mcf AF 1,130 psi/72 hrs. development Waterford pool LeBoeuf field	430 Mcf AF 1,000 psi/72 hrs. development Swails pool Orumlin field	800 Mcf AF 900 psi/48 hrs. development Swails pool Orumlin field	2,400 Mcf AF 1,000 psi/48 hrs. extension Goddard pool Erie field	800 Mcf AF 1,150 psi/48 hrs. development Waterford pool LeBoeuf field	900 Mcf AF 1,060 psi/48 hrs. development Swails pool Orumlin field	Reedsville 4590- Beekmantown 6118- Gatesburg 6196- Potsdam 7143- Basement 7338- 900 Mcf AF Plugged back to 3700	562 Mcf AF 1,050 psi/72 hrs. development Swails pool Orumlin field	4,500 Mcf Nat. 775 psi/8 hrs. extension Greenley pool Drumlin field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-23781	Erie 049-23791	Erie 049-23819	Erie 049-23850	Erie 049-23851	Erie 049-23853	Erie 049-23856	Erie 049-23859	Erie 049-23862	Erie 049-23874
NAME OF WELL	William Wurst #5	Erie City School District #1	Louis Malinowski #1	Dawson/Mahoney #1	Joseph E. Weber #1	Douglas McGahen #1	Lantz #4	E. Lewis #2	Washington Township #1	Warren Willey #1
OPERATOR	N.E.A. Cross Company	Erie City School District	N.E.A. Cross Company	N.E.A. Cross Company	NRM Petroleum Corporation	Mitch-Well Energy, Incorporated	U. S. Energy Development Corp.	Meridian Exploration #754	N.E.A. Cross Company	N.E.A. Cross Company
TOWNSHIP	LeBoeuf	City of Erie	Waterford	Waterford	Amity	Washington	Venango	Washington	Washington	Waterford
QUADRANGLE	Millers Station	Erie North	Cambridge Spgs, NE	Waterford	Union City	Cambridge Spgs, NE	Wattsburg	Cambridge Springs	Cambridge Spgs, NE	Waterford
LATITUDE	8,500 ft. S 41°52'30"	10,775 ft. S 42°10'00"	11,000 ft. S 42°00'00"	2,550 ft. S 41°57'30"	14,450 ft. S 42°00'00"	8,150 ft. S 41°55'00"	8,700 ft. S 42°02'30"	2,850 ft. S 41°52'30"	13,850 ft. S 41°55'00"	12,250 ft. S 41°57'30"
LONGITUDE	6,900 ft. W 79°52'30"	4,750 ft. W 80°02'30"	10,350 ft. W 80°00'00"	6,050 ft. W 79°55'00"	3,280 ft. W 79°45'00"	10,200 ft. W 80°02'30"	7,450 ft. W 79°45'00"	700 ft. W 80°02'30"	6,000 ft. W 80°02'30"	8,000 ft. W 79°52'30"
DATE COMPLETED	7-10-84	9-13-84	5-18-84	5-1-84	5-16-84	8-23-84	4-20-84	7-25-84	5-17-84	4-28-84
ELEVATION	1585 GR	650 GR	1250 GR	1475 GR	1462 GR	1450 GR	1391 GR	1280 GR	1350 GR	1330 GR
LOGS RECEIVED AND LOGGED INTERVALS	OBC/GR: 2780-4634	DBC/GR: 332-2697 GR/DLL: 300-2696	MERGE: 2000-3790	GR/CNL: 2140-4144	FDC/GR: 2550-4264		GR/LTD/CNL: 0-2808 GR/DLL: 520-2796 GR/PCL: 2000-2770 CYBER: 550-2780	GR/FDC: 0-4214 GR/DIL: 2570-4214	DBC/CNL: 1999-4039	OBC/CNL: 2117-4120
TULLY LIMESTONE	2920-	1172-	2084-	2406-	2574-		2282-	2454-	2482-	2416-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3152-	1390-	2310-	2638-	2818-		2518-	2670-	2701-	2646-
ORISKANY SANDSTONE RIDGELEY SANDSTONE									2952-	2873-
SILURIAN-DEVONIAN CARBONATES	3352-	1641-	2574-	2878-	3026-		2727-	2921-	2978-	2910-
SALINA GROUP LOCKPORT DOLOMITE	3412- 3990-	1730- 2116-	2682- 3154-	2978- 3522-	3098- 3660-	3477-		2984- 3558-	3020- 3557-	2950- 3496-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4258- 4314-	2376- 2426-	3432- 3480-	3770- 3834-	3914- 3970-	3898-		3828- 3882-	3848- 3901-	3762- 3816-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	4354- 4471- 4514-	2464- 2564- 2611-	3521- 3612- 3672-	3867- 3988- 4031-	4002- 4104- 4164-	3966- 4107- 4146-		3918- 4030- 4086-	3924-	3851- 3980- 4014-
QUEENSTON FORMATION	4526-	2618-	3680-	4040-	4178-	4155-		4094-		4026-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Bois Blanc, Manlius, Akron & Bertie	Medina	Medina	Medina
PRODUCING INTERVAL	4386-4443	2483-2615	3553-3588	3928-3974	4051-4102	4018-4062	2680-2762	3957-4027	3962-4022	3916-3929
TOTAL DEPTH	4649	2705	3795	4156	4271	4238	2811	4218	4183	4142
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Akron-Bertie	Queenston	Queenston	Queenston
RESULTS	2,300 Mcf AF 1,180 psi/48 hrs. development New Ireland field	Non-commercial 840 psi/120 hrs. development Erie Shallow pool Erie field	500 Mcf AF 1,150 psi/48 hrs. development Swails pool Drumlin field	2,500 Mcf AF 1,100 psi/48 hrs. development Waterford pool LeBoeuf field	60 Mcf Nat. 335 Mcf AF 930 psi/72 hrs. development Corry field	2,500 Mcf AF 1,100 psi/48 hrs. development Edinboro North field	6,750 Mcf AF 880 psi/72 hrs. Shallow pool test Macedonia pool Carter Hill field	225 Mcf AF 1,125 psi/168 hrs. development Edinboro North field	500 Mcf AF 1,100 psi/48 hrs. development Edinboro North field	3,500 Mcf AF 1,100 psi/48 hrs. development Waterford pool LeBoeuf field

COUNTY Permit Number	Erie 049-23883	Erie 049-23885	Erie 049-23899	Erie 049-23907	Erie 049-23915	Erie 049-23916	Erie 049-23918	Erie 049-23919	Erie 049-23925	Erie 049-23926
NAME OF WELL	RO & O #1	Edward Bernritter #1	Robert Hatheway #1	Henry Curtis #1	Rosalia Long #2	B. L. Potla #1	William & Geneva Lascek #1	James Reighard #1	Glenn Troyer #7G	Andy Ossa #1
OPERATOR	R.O. & D. Corporation	N.E.A. Cross Company	N.E.A. Cross Company	Kaltsas Oil Company, Inc.	Paco, Incorporated	Paco, Incorporated	Paco, Incorporated	Paco, Incorporated	Glenn V. Troyer	NRM Petroleum Corporation
TOWNSHIP	Harborcreek	Waterford	LeBoeuf	Venango	Conneaut	Conneaut	Conneaut	Conneaut	Waterford	Amity
QUADRANGLE	Harborcreek	Waterford	Cambridge Spgs, NE	Wattsburg	Beaver Center	Beaver Center	East Springfield	East Springfield	Waterford	Union City
LATITUDE	5,100 ft. S 42°10'00"	8,550 ft. S 41°57'30"	14,850 ft. S 41°55'00"	8,110 ft. S 42°05'00"	7,500 ft. S 41°52'30"	6,625 ft. S 41°52'30"	6,480 ft. S 41°55'00"	13,275 ft. S 41°55'00"	8,700 ft. S 41°57'30"	10,225 ft. S 42°00'00"
LONGITUDE	10,600 ft. W 79°57'30"	450 ft. W 79°55'00"	5,250 ft. W 80°00'00"	8,600 ft. W 79°47'30"	4,775 ft. W 80°22'30"	5,900 ft. W 80°22'30"	10,340 ft. W 80°22'30"	6,400 ft. W 80°22'30"	5,050 ft. W 79°57'30"	7,700 ft. W 79°47'30"
DATE COMPLETED	3-14-85	9-8-84	5-30-84	5-4-84	9-1-84	9-22-84	9-9-84	8-20-84	7-20-84	5-23-84
ELEVATION	690 GR	1310 GR	1550 GR	1455 GR	962 GR	963 GR	885 GR	842 GR	1180 GR	1459 GR
LOGS RECEIVED AND LOGGED INTERVALS			OBC/GR: 2598-4385							FDC/GR: 250-4181
TULLY LIMESTONE	1210-	2348-	2713-	2314-	1930-	1920-	1706-	1722-	2074-	2480-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	1440-	2577-	2934-	2343-	2100-	2088-	1875-	1893-	2292-	2716-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	1680-				Bois Blanc 2490-	2348-		2154-		
SILURIAN-DEVONIAN CARBONATES	1700-		3180-		2500-	2358-	2153-	2168-	2551-	2954-
SALINA GROUP LOCKPORT DOLOMITE	2160-		3246- 3804-	2752- 2834-	2558- 2938-	2430- 2944-	2240- 2765-	2244- 2770-	2636- 3446-	3030- 3566-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	2390- 2470-	3748-	4069- 4124-	3538- 3584-	3217-	3232- 3284-	3020- 3088-	3050- 3102-	3549-	3821- 3869-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	2484- 2580- 2640-	3790- 3890- 3939-	4158- 4281- 4322-	3638- 3720- 3766-	3310-	3310- 3434- 3486-	3111- 3232- 3274-	3126- 3258- 3290-	3679- 3728-	3924- 4032- 4082-
QUEENSTON FORMATION	2651-	3950-	4333-	3781-	3490-	3492-	3290-	3310-	3730-	4094-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	2521-2657	3843-3886	4224-4240	3639-3775	3341-3429	3345-3397	3148-3227	3161-3251	3596-3722	3953-3990
TOTAL DEPTH	2745	4070	4402	3825	3575	3595	3360	3386	3798	4181
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	650 Mcf AF 810 psi/24 hrs. development Harborcreek pool North East field	400 Mcf AF 1,000 psi/48 hrs. development Waterford pool LeBoeuf field	800 Mcf AF 1,150 psi/68 hrs. development Edinboro North field	400 Mcf AF 1,050 psi/72 hrs. development Bailey Brook pool North East field	35 Mcf AF 900 psi/72 hrs. development Pennside pool Conneaut field	40 Mcf AF 900 psi/72 hrs. development Pennside pool Conneaut field	35 Mcf AF 1,050 psi/72 hrs. development Bushnell-Lexington pool Conneaut field	15 Mcf AF 400 psi/72 hrs. development Bushnell-Lexington pool Conneaut field	1,000 Mcf AF 1,000 psi/72 hrs. development Waterford pool LeBoeuf field	223 Mcf Nat. 3,391 Mcf AF 960 psi/72 hrs. development Alder Run field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-23927	Erie 049-23930	Erie 049-23936	Erie 049-23937	Erie 049-23938	Erie 049-23945	Erie 049-23946	Erie 049-23947	Erie 049-23948	Erie 049-23953
NAME OF WELL	John Krieger #1	Erie Zoo #1	Hazer Brothers #1	B. Sedler #1	Hazer Brothers #1	B. Sedler #2	Al Klobusnik #1	Hazer Brothers #3	Hazer Brothers #2	Leo Pfadt #3
OPERATOR	NRM Petroleum Corporation	EZS Energy Development Partners	Paco, Incorporated	Paco, Incorporated	Paco, Incorporated	Paco, Incorporated	Paco, Incorporated	Paco, Incorporated	Paco, Incorporated	N.E.A. Cross Company
TOWNSHIP	Waterford	Erie	Girard	Girard	Conneaut	Conneaut	Elk Creek	Conneaut	Conneaut	Washington
QUADRANGLE	Waterford	Erie South	East Springfield	Albion	Albion	Albion	Albion	Albion	Albion	Cambridge Spgs, NE
LATITUDE	7,975 ft. S 42°00'00"	10,150 ft. S 42°07'30"	6,160 ft. S 41°57'30"	4,440 ft. S 41°57'30"	7,600 ft. S 41°57'30"	9,650 ft. S 41°57'30"	1,875 ft. S 41°55'00"	7,700 ft. S 41°57'30"	9,290 ft. S 41°57'30"	1,500 ft. S 42°00'00"
LONGITUDE	1,200 ft. W 79°57'30"	9,850 ft. W 80°02'30"	330 ft. W 80°22'30"	9,030 ft. W 80°20'00"	10,460 ft. W 80°20'00"	10,590 ft. W 80°20'00"	3,525 ft. W 80°20'00"	8,975 ft. W 80°20'00"	8,450 ft. W 80°20'00"	2,850 ft. W 80°00'00"
DATE COMPLETED	6-19-84	5-21-84	8-25-84	8-30-84	9-4-84	9-21-84	9-26-84	9-13-84	9-9-84	7-20-84
ELEVATION	1314 GR	799 GR	830 GR	840 GR	850 GR	854 GR	915 GR	845 GR	830 GR	1280 GR
LOGS RECEIVED AND LOGGED INTERVALS	T/FDC/GR: 1400-3872 GR: 3530-3846									DBC/GR: 1699-3784
TULLY LIMESTONE	2154-	1364-	1576-	1540-	1580-	1270-	1728-	1620-	1220-	2124-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2377-	1586-	1758-	1760-	1760-	1660-	1910-	1806-	1610-	2346-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	2632-	1724-		Bois Blanc 1980-	Bois Blanc 1970-	Bois Blanc 1830-	Bois Blanc 2180-		Bois Blanc 1780-	
SILURIAN-DEVONIAN CARBONATES	2650-		1960-	2030-	2020-	2120-		2080-	2070-	2624-
SALINA GROUP LOCKPORT DOLOMITE	2734- 3320-		2120- 2632-	2090- 2640-	2130- 2640-	2180- 2710-	2270- 2780-	2170- 2684-	2130- 2660-	2742- 3252-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3520- 3574-		2880- 2934-	2880-	2880-	2974-	3054-	2915- 2984-	2924-	3502- 3559-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3596- 3724- 3765-		2958- 3034- 3118-	2980-	2980-	3060-	3144- -3320	3016- 3128- 3166-	3010-	3581- 3699- 3756-
QUEENSTON FORMATION	3774-		3130-	3150-	3140-	3220-	3320-	3184-	3190-	3763-
PRODUCING FORMATION	Medina	Driskany	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3638-3706	1724-1797	3016-3042	3002-3046	3043-3087	3062-3156	3180-3282	3043-3121	3050-3136	3644-3696
TOTAL DEPTH	3872	1797	3222	3200	3240	3342	3387	3247	3280	3786
DEEPEST FORMATION REACHED	Queenston	Driskany	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	189 Mcf Nat. 2,316 Mcf AF 920 psi/72 hrs. development Talcott pool Erie field	7,500 Mcf Nat. 720 psi/48 hrs. development School pool Erie field	35 Mcf AF 800 psi/72 hrs. development Bushnell-Lexington pool Conneaut field	35 Mcf AF 800 psi/72 hrs. development Bushnell-Lexington pool Conneaut field	35 Mcf AF 850 psi/72 hrs. development Bushnell-Lexington pool Conneaut field	35 Mcf AF 1,000 psi/72 hrs. development Bushnell-Lexington pool Conneaut field	35 Mcf AF 600 psi/72 hrs. development Lundys Lane pool Conneaut field	35 Mcf AF 800 psi/72 hrs. development Bushnell-Lexington pool Conneaut field	35 Mcf AF 850 psi/72 hrs. development Bushnell-Lexington pool Conneaut field	2,100 Mcf AF 1,000 psi/48 hrs. development Swails pool Drumlin field

COUNTY Permit Number	Erie 049-23954	Erie 049-23957	Erie 049-23958	Erie 049-23959	Erie 049-23960	Erie 049-23961	Erie 049-23962	Erie 049-23966	Erie 049-23969	Erie 049-23971
NAME OF WELL	Walter Moraski #1	R. Lewis #2	Ruth Lewis #3	F. Vanco #2	Arden Stafford #3	Arden Stafford #2	Byrtus #3	Walter Zaborowski #1	Robert Spencer #1	Roger Hecker #1
OPERATOR	N.E.A. Cross Company	Meridian Exploration #756	Meridian Exploration #757	Meridian Exploration #743	Meridian Exploration #746	Meridian Exploration #752	Meridian Exploration #751	Kaltsas Oil Company, Inc.	Kaltsas Oil Company, Inc.	N.E.A. Cross Company
TOWNSHIP	Waterford	Washington	Washington	Washington	Washington	Washington	Washington	Greenfield	Greenfield	Waterford
QUADRANGLE	Cambridge Spgs, NE	Cambridge Spgs, NE	Cambridge Spgs, NE	Edinboro South	Cambridge Spgs, NE	Cambridge Spgs, NE	Cambridge Spgs, NE	Wattsburg	Wattsburg	Cambridge Spgs, NE
LATITUDE	10,500 ft. S 42°00'00"	4,900 ft. S 41°55'00"	6,350 ft. S 41°55'00"	7,800 ft. S 41°52'30"	13,750 ft. S 41°57'30"	14,100 ft. S 41°57'30"	2,650 ft. S 41°55'00"	10,790 ft. S 42°07'30"	10,500 ft. S 42°07'30"	8,100 ft. S 42°00'00"
LONGITUDE	1,200 ft. W 80°00'00"	1,850 ft. W 80°02'30"	1,100 ft. W 80°02'30"	3,250 ft. W 80°07'30"	11,200 ft. W 80°02'30"	8,500 ft. W 80°02'30"	4,650 ft. W 80°02'30"	9,075 ft. W 79°45'00"	3,710 ft. W 79°45'00"	2,650 ft. W 80°00'00"
DATE COMPLETED	6-10-84	8-30-84	8-24-84	8-19-84	8-9-84	8-16-84	7-28-84	6-16-84	12-28-84	6-25-84
ELEVATION	1390 GR	1350 GR	1345 GR	1330 GR	1370 GR	1310 GR	1420 GR	1505 GR	1445 GR	1425 GR
LOGS RECEIVED AND LOGGED INTERVALS		FDC/CNL: 2100-4146 DIL/LL: 2100-4148	FDC/DBC: 2100-4166 LL: 2100-4165	OBC/CNL: 2153-4162 OIL/LL: 2100-4164	FDC/OBC: 2045-4068 OIL/LL: 2000-4070	OBC/CNL: 2000-4008 OIL/LL: 2000-4008 Laser: 3770-3882	GR/FDC: 0-4162 GR/OIL: 2450-4162			OBC/GR: 2200-3962
TULLY LIMESTONE	2191-	2452-	2450-	2422-	2390-	2348-	2492-	2318-	2276-	2230-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2413-	2668-	2666-	2648-	2602-	2566-	2708-	2546-	2492-	2454-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	2588-			2886-				2834-		
SILURIAN-DEVONIAN CARBONATES		2932-	2930-	2890-	2870-	2826-	2974-			2742-
SALINA GROUP LOCKPORT DOLOMITE		2996- 3524-	3000- 3533-	2962- 3540-	2936- 3446-	2890- 3402-	3038- 3552-	2856- 3253-	3034- 3140-	2866- 3322-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE		3794- 3848-	3803- 3856-	3811- 3864-	3712- 3766-	3672- 3724-	3818- 3873-	3496- 3566-	3414- 3522-	3583- 3639-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE		3881- 4003- 4049-	3898- 4016- 4056-	3887- 4020- 4063-	3788- 3907- 3963-	3758- 3868- 3920-	3913- 4022- 4072-	3600- 3708- 3743-	3556- 3544- 3701-	3672- 3786- 3834-
QUEENSTON FORMATION		4057-	4063-	4074-	3971-	3929-	4078-	3760-	3716-	3842-
PRODUCING FORMATION	Oriskany or Bois Blanc	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	2588-2656	3950-4000	3935-4000	3930-3986	3851-3874	3814-3863	3933-3988	3631-3754	3633-3713	3695-3742
TOTAL DEPTH	2656	4150	4170	4175	4072	4030	4172	3821	3850	3967
DEEPEST FORMATION REACHED	Oriskany or Bois Blanc	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	2,800 Mcf Nat. 700 psi/48 hrs. development Greenley pool Drumlin field	60 Mcf Nat. 346 Mcf AF 1,090 psi/168 hrs. development Edinboro North field	749 Mcf AF 1,080 psi/600 hrs. development Edinboro North field	179 Mcf AF 1,175 psi/168 hrs. development Edinboro North field	126 Mcf AF 1,080 psi/192 hrs. development Edinboro North field	225 Mcf AF 920 psi/168 hrs. development Edinboro North field	189 Mcf Nat. 600 Mcf AF 1,080 psi/168 hrs. development Edinboro North field	300 Mcf AF 1,100 psi/72 hrs. development Bull Reservoir pool North East field	100 Mcf AF 1,000 psi/72 hrs. development Bull Reservoir pool North East field	800 Mcf AF 700 psi/48 hrs. development Talcott pool Erie field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-23972	Erie 049-23975	Erie 049-23976	Erie 049-23977	Erie 049-23985	Erie 049-23992	Erie 049-23994	Erie 049-23995	Erie 049-23996	Erie 049-23997
NAME OF WELL	George Nick #2	Walker #1	Joseph Tomcho #A1	Julius Qssa #1	Thomas McGahen #5	McLaughlin/Lindberg #1	Mary Skelton #2	Gardner #1	G. Swift #1	G. Swift #2
OPERATOR	N.E.A. Cross Company	NRM Petroleum Corporation	NRM Petroleum Corporation	NRM Petroleum Corporation	LeBoeuf Manufacturing, Inc.	N.E.A. Cross Company	Meridian Exploration #742	Meridian Exploration #753	Meridian Exploration #747	Meridian Exploration #748
TOWNSHIP	Waterford	Waterford	Amity	Amity	LeBoeuf	Mill Village	Washington	Washington	Washington	Washington
QUADRANGLE	Cambridge Spgs, NE	Waterford	Union City	Union City	Cambridge Spgs, NE	Waterford	Edinboro South	Cambridge Spgs, NE	Edinboro North	Edinboro North
LATITUDE	8,550 ft. S 42°00'00"	10,075 ft. S 41°57'30"	5,600 ft. S 42°00'00"	8,175 ft. S 42°00'00"	11,375 ft. S 41°55'00"	13,200 ft. S 41°55'00"	8,700 ft. S 41°52'30"	3,200 ft. S 41°55'00"	2,800 ft. S 41°55'00"	4,550 ft. S 41°55'00"
LONGITUDE	4,800 ft. W 80°00'00"	5,275 ft. W 79°57'30"	6,825 ft. W 79°47'30"	5,175 ft. W 79°47'30"	5,120 ft. W 80°00'00"	2,600 ft. W 79°57'30"	6,300 ft. W 80°07'30"	10,500 ft. W 80°02'30"	8,850 ft. W 80°07'30"	8,350 ft. W 80°07'30"
DATE COMPLETED	6-8-84	7-18-84	6-11-84	6-5-84	7-16-84	7-15-84	8-14-84	8-26-84	9-1-84	9-10-84
ELEVATION	1450 GR	1172 GR	1500 GR	1525 GR	1496 GR	1210 GR	1410 GR	1370 GR	1310 GR	1240 GR
LOGS RECEIVED AND LOGGED INTERVALS	OBC/GR: 2158-2678	FOC/T/GR: 2050-3825	Merge: 2400-4184	FOC/GO/T: 2450-4226			DBC/CNL: 2198-4250 OIL/LL: 402-4252	OBC/CNL: 2100-4144 OIL/LL: 2100-4146	DBC/CNL: 1900-3968 OIL/LL: 1900-3967	
TULLY LIMESTONE	2238-	2082-	2486-	2538-	2673-	2406-	2500-	2452-	2264-	2204-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2452-	2302-	2722-	2778-	2895-	2640-	2724-	2672-	2470-	2409-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	Bois Blanc 2623-									
SILURIAN-DEVONIAN CARBONATES		2570-	2909-	3016-	3150-		2956-	2936-	2746-	2610-
SALINA GROUP LOCKPORT DOLOMITE		2670- 3234-	2955- 3600-	3102- 3623-	3220- 3749-		3032- 3620-	3002- 3520-	2822- 3342-	2807- 3300-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE		3476- 3535-	3832- 3882-	3882- 3943-	4030- 4090-	3810-	3890- 3940-	3793- 3845-	3610- 3666-	3529- 3605-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE		3567- 3658- 3728-	3918- 4020- 4074-	3978- 4105- 4135-	4124- 4248- 4288-	3840- 3976- 4010-	3965- 4092- 4142-	3880- 3984- 4043-	3690- 3817- 3867-	3665- 3726- 3804-
QUEENSTON FORMATION		3737-	4087-	4146-	4300-	4020-	4150-	4048-	3874-	3812-
PRODUCING FORMATION	Qriskany	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	2674-2693	3592-3648	3953-4079	4030-4080	4153-4233	3907-3946	4006-4062	3933-3982	3732-3768	3704-3723
TOTAL DEPTH	2693	3825	4184	4226	4382	4155	4269	4148	3972	3914
DEEPEST FORMATION REACHED	Qriskany	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	3,500 Mcf Nat. 700 psi/48 hrs. extension Greenley pool Orumlin field	1,384 Mcf AF 940 psi/72 hrs. development Waterford pool LeBoeuf field	1,073 Mcf AF 1,140 psi/72 hrs. development Alder Run field	1,073 Mcf AF 950 psi/72 hrs. extension Alder Run field	2,000 Mcf AF 700 psi/72 hrs. development Mill Village field	2,500 Mcf AF 800 psi/48 hrs. development Mill Village field	90 Mcf AF 1,110 psi/168 hrs. development Edinboro North field	112 Mcf AF 1,120 psi/312 hrs. development Edinboro North field	226 Mcf AF 1,100 psi/168 hrs. development Franklin Center field	210 Mcf AF 1,090 psi/168 hrs. development Franklin Center field

COUNTY Permit Number	Erie 049-23998	Erie 049-23999	Erie 049-24000	Erie 049-24002	Erie 049-24003	Erie 049-24006	Erie 049-24011	Erie 049-24012	Erie 049-24013	Erie 049-24018
NAME OF WELL	Smith Unit #3	Leon Banta #2	Leon Banta #3	Patricia Orbanick #2	Richard Gaber #4	Medved #1-2	George Mitchell #5	John Hanas #2	Robert Shutts #1	William Halbach #1
OPERATOR	Meridian Exploration #749	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	Northwest Natural Gas Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	Troyer Gas & Oil Company
TOWNSHIP	Washington	LeBoeuf	LeBoeuf	Waterford	Waterford	Conneaut	LeBoeuf	LeBoeuf	Waterford	Waterford
QUADRANGLE	Cambridge Spgs, NE	Cambridge Spgs, NE	Cambridge Spgs, NE	Cambridge Spgs, NE	Waterford	Conneautville	Waterford	Cambridge Spgs, NE	Cambridge Spgs, NE	Waterford
LATITUDE	1,400 ft. S 41°55'00"	6,050 ft. S 41°55'00"	5,500 ft. S 41°55'00"	9,450 ft. S 41°57'30"	450 ft. S 41°57'30"	6,350 ft. S 41°52'30"	12,900 ft. S 41°55'00"	13,850 ft. S 41°55'00"	11,750 ft. S 42°00'00"	6,500 ft. S 42°00'00"
LONGITUDE	10,600 ft. W 80°02'30"	7,550 ft. W 80°00'00"	8,800 ft. W 80°00'00"	6,000 ft. W 80°00'00"	8,200 ft. W 79°55'00"	8,000 ft. W 80°20'00"	10,500 ft. W 79°57'30"	2,400 ft. W 80°00'00"	250 ft. W 80°02'30"	7,900 ft. W 79°55'00"
DATE COMPLETED	8-3-84	7-3-84	6-26-84	6-29-84	7-19-84	10-26-84	7-22-84	6-17-84	7-27-84	8-24-84
ELEVATION	1335 GR	1490 GR	1530 GR	1370 GR	1420 GR	1080 GR	1160 GR	1320 GR	1390 GR	1370 GR
LOGS RECEIVED AND LOGGED INTERVALS	OBC/CNL: 2063-4060 GR/LL: 2061-4061	OBC/GR: 2260-4279	DBC/GR: 2575-4288	OBC/GR: 2350-4092	OBC/GR: 2300-4051		OBC/GR: 426-4058	OBC/GR: 2349-4188	FOC/GR: 2250-3980	OBC/GR: 2093-3960
TULLY LIMESTONE	2377-	2583-	2620-	2420-	2310-	2106-	2345-	2484-	2296-	2220-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2590-	2810-	2847-	2640-	2540-	2280-	2576-	2708-	2530-	2444-
ORISKANY SANDSTONE RIDGELEY SANDSTONE										2696-
SILURIAN-DEVONIAN CARBONATES	2858-	3072-	3108-	2908-	2792-	2544-	2816-	2944-	2802-	2710-
SALINA GROUP LOCKPORT DOLOMITE	2920- 3418-	3142- 3668-	3180- 3718-	2990- 3454-	2896- 3430-	2620- 3080-	2876- 3418-	3016- 3572-	2924- 3330-	2792- 3358-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3704- 3762-	3942- 3996-	3982- 4036-	3718- 3781-	3688- 3743-	3354-	3687- 3742-	3838- 3894-	3600- 3654-	3590- 3642-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3806- 3881- 3954-	4018- 4138- 4194-	4058- 4186- 4234-	3803- 3906- 3976-	3766- 3864- 3936-	3446-	3764- 3892- 3942-	3916- 4048- 4092-	3676- 3810- 3852-	3676- 3764- 3830-
QUEENSTON FORMATION	3962-	4203-	4243-	3984-	3947-	3540-	3950-	4103-	3858-	3841-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3846-3878	4085-4115	4127-4184	3878-3899	3831-3854	3474-3534	3832-3887	3988-4042	3727-3761	3710-3757
TOTAL DEPTH	4063	4293	4325	4095	4066	3608	4089	4228	3977	3965
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	270 Mcf AF 1,030 psi/216 hrs. development Edinboro North field	1,700 Mcf AF 770 psi/48 hrs. development Edinboro North field	3,500 Mcf AF 860 psi/48 hrs. development Edinboro North field	500 Mcf AF 1,080 psi/48 hrs. development Swails pool Orumlin field	2,000 Mcf AF 1,100 psi/48 hrs. development Waterford pool LeBoeuf field	1,100 Mcf AF 920 psi/48 hrs. development Lundys Lane pool Conneaut field	7,000 Mcf AF 750 psi/48 hrs. development Mill Village field	300 Mcf AF 900 psi/48 hrs. development Mill Village field	1,500 Mcf AF 1,000 psi/48 hrs. development Swails pool Orumlin field	1,000 Mcf AF 1,100 psi/24 hrs. development Talcott pool Erie field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-24019	Erie 049-24020	Erie 049-24022	Erie 049-24023	Erie 049-24024	Erie 049-24025	Erie 049-24027	Erie 049-24030	Erie 049-24034	Erie 049-24035
NAME OF WELL	Oonald Flook #1	Homer Canfield #1	Edward Padden #1	Thomas Mannarelli #3	Giacomelli #1	Thermoclad Company #1	Levant Brace #1	O. Magoon #1	James Glover #4	Raymond Boyd #3
OPERATOR	Troyer Gas & Oil Company	Troyer Gas & Oil Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	Thermoclad Company	Mitch-Well Energy, Inc.	Envirogas, Incorporated	N.E.A. Cross Company	N.E.A. Cross Company
TOWNSHIP	Waterford	Waterford	Waterford	LeBoeuf	Waterford	Harborcreek	Waterford	Greenfield	LeBoeuf	LeBoeuf
QUADRANGLE	Waterford	Cambridge Spgs, NE	Cambridge Spgs, NE	Waterford	Waterford	Erie North	Waterford	North East	Waterford	Waterford
LATITUDE	5,200 ft. S 42°00'00"	4,300 ft. S 42°00'00"	1,650 ft. S 42°00'00"	9,650 ft. S 41°55'00"	13,100 ft. S 42°00'00"	4,900 ft. S 42°10'00"	3,650 ft. S 41°57'30"	11,400 ft. S 42°10'00"	5,300 ft. S 41°55'00"	6,250 ft. S 41°55'00"
LONGITUDE	10,650 ft. W 79°55'00"	5,100 ft. W 80°00'00"	1,050 ft. W 80°00'00"	1,300 ft. W 79°55'00"	11,000 ft. W 79°57'30"	1,200 ft. W 80°00'00"	1,700 ft. W 79°57'30"	4,800 ft. W 79°45'00"	4,850 ft. W 79°57'30"	4,000 ft. W 79°57'30"
DATE COMPLETED	8-4-84	9-5-84	8-9-84	7-16-84	7-13-84	10-1-84	8-12-84	7-9-84	10-17-84	11-8-84
ELEVATION	1340 GR	1410 GR	1220 GR	1320 GR	1260 GR	690 GR	1190 GR	1470 GR	1170 GR	1170 GR
LOGS RECEIVED AND LOGGED INTERVALS	DBC/GR: 1891-3908		OBC/GR: 1700-3718	OBC/GR: 2500-4170	OBC/GR: 2001-3832				OBC/GR: 2000-4008	OIL/GR: 2330-4046
TULLY LIMESTONE	2162-	2190-	2000-	2478-	2064-		2080-	2124-	2322-	2340-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2384-	2410-	2230-	2714-	2284-	1410-	2306-	2366-	2522-	2564-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	2638-					1605- 1630-	2610-	Bois Blanc 2560-	2806-	2824-
SILURIAN-DEVONIAN CARBONATES	2660-	2708-	2482-	2948-	2544-		2716-	2610-	2815-	2830-
SALINA GROUP LOCKPORT DOLOMITE	2744- 3268-		2584- 3096-	3018- 3588-	2672- 3197-		3048- 3206-	2712- 3090-	2874- 3408-	2892- 3396-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3522- 3580-		3352- 3404-	3838- 3904-	3455- 3515-	2440-	3532-	3334- 3400-	3648- 3702-	3670- 3719-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3614- 3702- 3772-		3436- 3527- 3596-	3928- 4034- 4100-	3537- 3662- 3708-	2454-	3554- 3660- 3714-	3432- 3576-	3750- 3858- 3898-	3742- 3872- 3916-
QUEENSTON FORMATION	3778-		3604-	4112-	3714-	2630-	3720-	3591-	3908-	3928-
PRODUCING FORMATION	Medina	Bois Blanc	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3642-3702		3478-3511	3998-4030	3590-3621	2482-2627	3550-3660	3463-3586	3806-3843	3827-3866
TOTAL DEPTH	3900	2708	3720	4177	3836	2700	3795	3675	4012	4052
DEEPEST FORMATION REACHED	Queenston	Silurian-Oevonian	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,000 Mcf AF 1,100 psi/24 hrs. development Talcott pool Erie field	5,400 Mcf Nat. 740 psi/192 hrs. development Greenley pool Orumlin field	4,100 Mcf AF 1,040 psi/48 hrs. development Talcott pool Erie field	500 Mcf AF 400 psi/48 hrs. development Waterford pool LeBoeuf field	2,600 Mcf AF 880 psi/48 hrs. development Waterford pool LeBoeuf field	605 Mcf AF 720 psi/240 hrs. development Lawrence Park pool Erie field	2,500 Mcf AF 1,075 psi/48 hrs. development Waterford pool LeBoeuf field	300 Mcf AF 1,000 psi/240 hrs. development Bull Reservoir pool North East field	400 Mcf AF 1,000 psi/48 hrs. development Mill Village field	500 Mcf AF 1,150 psi/48 hrs. development Mill Village field

COUNTY Permit Number	Erie 049-24036	Erie 049-24038	Erie 049-24039	Erie 049-24040	Erie 049-24041	Erie 049-24042	Erie 049-24047	Erie 049-24048	Erie 049-24049	Erie 049-24050
NAME OF WELL	Mary Zywiec #2	Kwiatowski #1	Thomas McGahen #6	William Lyons #2	F. King #1	Porter #1	Roy H. Russell #1	Carrie Robertson #2	James Blackwood #1	Hazel Briggs #1
OPERATOR	N.E.A. Cross Company	Vineyard Oil & Gas Company	LeBoeuf Manufacturing, Inc.	N.E.A. Cross Company	Meridian Exploration #706	Meridian Exploration #707	NRM Petroleum Corporation	NRM Petroleum Corporation	NRM Petroleum Corporation	NRM Petroleum Corporation
TOWNSHIP	LeBoeuf	Venango	LeBoeuf	Waterford	LeBoeuf	LeBoeuf	Waterford	Waterford	Waterford	Waterford
QUADRANGLE	Waterford	Wattsburg	Cambridge Spgs, NE	Waterford	Cambridge Springs	Cambridge Springs	Waterford	Waterford	Waterford	Waterford
LATITUDE	11,100 ft. S 41°55'00"	10,475 ft. S 42°05'00"	5,740 ft. S 41°55'00"	2,450 ft. S 41°57'30"	5,050 ft. S 41°52'30"	2,325 ft. S 41°52'30"	3,000 ft. S 42°00'00"	5,080 ft. S 42°00'00"	2,250 ft. S 42°00'00"	7,360 ft. S 42°00'00"
LONGITUDE	4,200 ft. W 79°55'00"	11,075 ft. W 79°45'00"	6,460 ft. W 80°00'00"	9,550 ft. W 79°55'00"	9,100 ft. W 80°00'00"	7,500 ft. W 80°00'00"	380 ft. W 79°57'30"	1,130 ft. W 79°57'30"	2,750 ft. W 79°57'30"	10,970 ft. W 79°57'30"
DATE COMPLETED	7-23-84	7-24-84	7-23-84	7-29-84	8-7-84	8-1-84	11-20-84	12-31-84	11-14-84	11-26-84
ELEVATION	1265 GR	1660 GR	1500 GR	1380 GR	1390 GR	1435 GR	1315 GR	1289 GR	1300 GR	1279 GR
LOGS RECEIVED AND LOGGED INTERVALS	OBC/OBC: 2391-4130			OBC/GR: 1943-3950	OBC/CNL: 2297-4334 OIL/LL: 2300-4336	OBC/CNL: 2292-4349 OIL/LL: 423-4349	FOC/GR: 2050-3842	FOC/GR: 2100-3830	FOC/GR: 2080-3770 OIL/GR: 2080-3770	FOC/GR: 2000-3804
TULLY LIMESTONE	2412-	2047-	2596-	2280-	2590-	2614-	2116-	2100-	2090-	2074-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2648-	2283-	2814-	2502-	2818-	2832-	2340-	2322-	2316-	2298-
ORISKANY SANDSTONE RIDGELEY SANDSTONE		2936-					2594-		2569-	2558-
SILURIAN-DEVONIAN CARBONATES	2884-		3090-	2748-	3052-	3088-	2616-	2570-	2588-	2586-
SALINA GROUP LOCKPORT DOLOMITE	2953- 3534-	2997- 3507-	3162- 3676-	2854- 3396-	3128- 3698-	3156- 3720-	2700- 3218-	2680- 3212-	2674- 3214-	2678- 3192-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3786- 3852-	3755-	3910- 4020-	3642- 3710-	3965- 4020-	3974- 4040-	3476- 3530-	3472- 3516-	3448- 3500-	3450- 3500-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3890- 4010- 4050-	3885- 3966- 4015-	4053- 4184- 4218-	3733- 3866- 3904-	4043- 4168- 4221-	4081- 4191- 4240-	3553- 3660- 3722-	3548- 3646- 3706-	3534- 3647- 3692-	3548- 3652- 3700-
QUEENSTON FORMATION	4064-	4025-	4227-	3914-	4238-	4250-	3734-	3716-	3702-	3707-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3955-4006	3904-4022	4089-4159	3790-3856	4100-4166	4115-4184	3612-3645	3574-3626	3568-3612	3578-3611
TOTAL DEPTH	4132	4115	4344	3980	4343	4354	3845	3834	3778	3808
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	150 Mcf AF 900 psi/48 hrs. development Waterford pool LeBoeuf field	1,100 Mcf AF 1,000 psi/96 hrs. extension Bailey Brook pool North East field	1,000 Mcf AF 810 psi/72 hrs. development Edinboro North field	1,500 Mcf AF 950 psi/48 hrs. development Waterford pool LeBoeuf field	262 Mcf AF 810 psi/168 hrs. development Edinboro North field	220 Mcf AF 1,180 psi/216 hrs. development Edinboro North field	103 Mcf Nat. 1,237 Mcf AF 1,030 psi/72 hrs. development Talcott pool Erie field	3,610 Mcf AF 1,090 psi/72 hrs. development Talcott pool Erie field	249 Mcf Nat. 875 Mcf AF 1,050 psi/72 hrs. development Talcott pool Erie field	158 Mcf Nat. 193 Mcf AF 860 psi/72 hrs. development Talcott pool Erie field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-24051	Erie 049-24060	Erie 049-24061	Erie 049-24064	Erie 049-24066	Erie 049-24067	Erie 049-24068	Erie 049-24069	Erie 049-24070	Erie 049-24073
NAME OF WELL	Cripe Associates #1	J. Yost #1	S. Janes #1	Carl Adamson #1	Edward Biebel #1	Peter Biebel #1	EJMN Metzler #2	O. Gifford #1	Leo Richardson #1	Alan I. Renkis #1
OPERATOR	Troyer Gas & Oil Company	Envirogas, Incorporated	Envirogas, Incorporated	Troyer Gas & Oil Company	Troyer Gas & Oil Company	Troyer Gas & Oil Company	Troyer Gas & Oil Company	Envirogas, Incorporated	N.E.A. Cross Company	Alan I. Renkis
TOWNSHIP	Waterford	Venango	Venango	Waterford	Greene	Greene	Washington	Venango	Waterford	Springfield
QUADRANGLE	Cambridge Spgs, NE	Wattsburg	Wattsburg	Waterford	Hammett	Hammett	Cambridge Spgs, NE	Wattsburg	Cambridge Spgs, NE	East Springfield
LATITUDE	9,950 ft. S 42°00'00"	9,000 ft. S 42°05'00"	10,600 ft. S 42°05'00"	5,600 ft. S 42°00'00"	11,850 ft. S 42°02'30"	9,400 ft. S 42°02'30"	1,300 ft. S 41°55'00"	7,800 ft. S 42°05'00"	11,500 ft. S 42°00'00"	9,550 ft. S 42°00'00"
LONGITUDE	6,050 ft. W 80°00'00"	3,300 ft. W 79°47'30"	6,500 ft. W 79°45'00"	10,700 ft. W 79°52'30"	4,700 ft. W 79°57'30"	6,500 ft. W 79°57'30"	3,300 ft. W 80°02'30"	5,100 ft. W 79°45'00"	6,550 ft. W 80°00'00"	6,600 ft. W 80°25'00"
DATE COMPLETED	7-27-84	9-23-84	7-16-84	8-20-84	9-10-84	9-24-84	9-2-84	7-26-84	8-19-84	3-27-85
ELEVATION	1300 GR	1565 GR	1650 GR	1560 GR	1230 GR	1245 GR	1500 GR	1670 GR	1280 GR	700 GR
LOGS RECEIVED AND LOGGED INTERVALS	FDC/CNL: 1791-3848			OBC/GR: 2400-4164	DBC/GR: 1829-3700	OBC/GR: 1694-3708	DBC/GR: 2200-4264		OBC/GR: 2050-3810	
TULLY LIMESTONE	2109-	2440-	2530-	2427-	2003-	1992-	2572-	2536-	2084-	
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2328-	2671-	2764-	2658-	2230-	2221-	2790-	2766- Bois Blanc 2964-	2306-	1490-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	2586-		Bois Blanc 2950-	2898-	2480-	2467-	3058-	3011-		1745-
SILURIAN-DEVONIAN CARBONATES	2603-	2896-	2984-	2912-	2500-	2488-	3084-	3022-	2574-	1775-
SALINA GROUP LOCKPORT DOLOMITE	2716- 3216-	3010- 3416-	3090- 3528-	2996- 3541-	2581- 3118-	2572- 3091-	3122- 3661-	3127- 3530-	2701- 3175-	2220- 2310-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3476- 3534-	3656- 3720-	3772- 3840-	3803- 3854-	3344- 3395-	3344- 3394-	3913- 3964-	3780- 3845-	3433- 3492-	2640- 2700-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3568- 3684- 3730-	3755- 3877- 3900-	3876- 3994- 4020-	3876- 4001- 4044-	3441- 3536- 3585-	3415- 3550- 3586-	3986- 4118- 4162-	3886- 3993- 4030-	3514- 3646- 3690-	2715- 2820- 2890-
QUEENSTON FORMATION	3738-	3918-	4038-	4053-	3594-	3594-	4170-	4049-	3698-	2900-
PRODUCING FORMATION		Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL		3908-3914	4029-4035	3922-3960	3534-3473	3474-3532	4070-4115	4036-4042	3579-3631	2743-2858
TOTAL DEPTH	3852	3995	4133	4168	3710	3720	4265	4133	3825	2965
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	Show of gas 1,100 psi/8 hrs. development Swails pool Drumlin field	3,000 Mcf AF 1,020 psi/240 hrs. development Bailey Brook pool North East field	8,000 Mcf AF 1,190 psi/240 hrs. development Bailey Brook pool North East field	500 Mcf AF 1,100 psi/48 hrs. development Waterford pool LeBoeuf field	2,000 Mcf AF 1,080 psi/24 hrs. development Goddard pool Erie field	1,000 Mcf AF 1,050 psi/24 hrs. development Goddard pool Erie field	2,000 Mcf AF 1,100 psi/48 hrs. development Edinboro North field	2,000 Mcf AF 1,040 psi/240 hrs. development Bailey Brook pool North East field	1,000 Mcf AF 1,100 psi/48 hrs. development Swails pool Orumlin field	800 Mcf AF 810 psi/10 days development Pierce pool Conneaut field

COUNTY Permit Number	Erie 049-24078	Erie 049-24079	Erie 049-24080	Erie 049-24081	Erie 049-24082	Erie 049-24083	Erie 049-24084	Erie 049-24088	Erie 049-24089	Erie 049-24094
NAME OF WELL	Gene #1	Hall/Wasielewski #1	Robert Langdon #2	Nelson Porter #2	Donald Blass #1	A. Kieklak #1	Elwood Niemeyer #3	Baughman/McCall #1	Municipal Authority #1	James Kavenev #1
OPERATOR	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	Envirogas, Incorporated	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	NRM Petroleum Corporation
TOWNSHIP	Waterford	Waterford	LeBoeuf	LeBoeuf	Greene	Venango	LeBoeuf	Waterford	Union	Greene
QUADRANGLE	Waterford	Cambridge Spgs, NE	Waterford	Millers Station	Waterford	Wattsburg	Waterford	Cambridge Spgs, NE	Union City	Hammett
LATITUDE	7,850 ft. S 42°00'00"	13,500 ft. S 42°00'00"	11,950 ft. S 41°55'00"	3,400 ft. S 41°52'30"	75 ft. S 42°00'00"	6,550 ft. S 42°05'00"	950 ft. S 41°55'00"	10,750 ft. S 42°00'00"	1,650 ft. S 41°55'00"	7,150 ft. S 42°02'30"
LONGITUDE	7,900 ft. W 79°55'00"	7,950 ft. W 80°00'00"	525 ft. W 79°55'00"	7,225 ft. W 79°57'30"	1,450 ft. W 79°57'30"	9,150 ft. W 79°45'00"	8,100 ft. W 79°57'30"	8,500 ft. W 80°00'00"	5,850 ft. W 79°47'30"	8,700 ft. W 79°57'30"
DATE COMPLETED	8-6-84	8-3-84	8-6-84	8-13-84	9-12-84	8-8-84	8-13-84	8-12-84	9-16-84	3-14-85
ELEVATION	1410 GR	1270 GR	1350 GR	1170 GR	1310 GR	1665 GR	1230 GR	1260 GR	1400 GR	1328 GR
LOGS RECEIVED AND LOGGED INTERVALS	DBC/GR: 2224-3978	DBC/GR: 3656-3702	FOC/GR: 2480-4242	DBC/GR: 2072-4071	DBC/GR: 1800-3815		OBC/GR: 1995-4034	DBC/GR: 2000-3800	FOC: 2630-4350	FDC/GR: 2000-3775
TULLY LIMESTONE	2278-	2162-	2542-	2388-	2098-	2520-	2328-	2069-	2636-	2058-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2508-	2388-	2776-	2624-	2326-	2748-	2548-	2290-	2874-	2286-
ORISKANY SANDSTONE RIDGELEY SANDSTONE					2584-	Bois Blanc 2920-				2536-
SILURIAN-DEVONIAN CARBONATES	2760-	2663-	3008-	2860-	2602-	2970-	2803-	2550-	3088-	2550-
SALINA GROUP LOCKPORT DOLOMITE	2856- 3366-	2782- 3226-	3082- 3650-	2920- 3480-	2686- 3202-	3086- 3500-	2878- 3404-	2668- 3158-	3156- 3698-	2638- 3180-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3660- 3670-	3506- 3558-	3906- 3972-	3740- 3804-	3462- 3510-	3748- 3812-	3667- 3720-	3424- 3484-	3954- 4020-	3414- 3458-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3703- 3818- 3864-	3580- 3703- 3754-	4008- 4130- 4170-	3828- 3954- 4002-	3521- 3657- 3700-	3848- 3966- 3994-	3743- 3884- 3920-	3518- 3633- 3678-	4052- 4164- 4218-	3500- 3610- 3648-
QUEENSTON FORMATION	3872-	3761-	4182-	4014-	3711-	4012-	3928-	3686-	4230-	3657-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3735-3788	3656-3702	4073-4118	3892-3948	3583-3649	3916-4005	3800-3856	3546-3595	4128-4140	3520-3564
TOTAL DEPTH	3982	3884	4244	4100	3822	4080	4040	3811	4363	3775
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	500 Mcf AF 1,040 psi/48 hrs. development Talcott pool Erie field	3,200 Mcf AF 1,050 psi/48 hrs. development Swails pool Drumlin field	5,900 Mcf AF 870 psi/48 hrs. development New Ireland field	900 Mcf AF 900 psi/48 hrs. development Mill Village field	1,500 Mcf AF 1,150 psi/48 hrs. development Talcott pool Erie field	1,000 Mcf AF 1,080 psi/240 hrs. development Bailey Brook pool North East field	2,800 Mcf AF 900 psi/48 hrs. development Waterford pool LeBoeuf field	950 Mcf AF 1,060 psi/48 hrs. development Swails pool Drumlin field	300 Mcf AF 800 psi/48 hrs. development Bentley Run pool Union City field	375 Mcf AF 1,010 psi/72 hrs. development Goddard pool Erie field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-24096	Erie 049-24098	Erie 049-24099	Erie 049-24102	Erie 049-24108	Erie 049-24109	Erie 049-24110	Erie 049-24115	Erie 049-24116	Erie 049-24117
NAME OF WELL	Oelos Oobson #1	Carl White #1	North West School #2	Moore-Brace #1	H. James Zimmerly #1	Morse Meyers #1	Joseph R. Bilski #1	S. Janes #3	S. Janes #4	S. Michael #1
OPERATOR	Paco, Incorporated	Paco, Incorporated	N.E.A. Cross Company	NRM Petroleum Corporation	NRM Petroleum Corporation	NRM Petroleum Corporation	NRM Petroleum Corporation	Envirogas, Incorporated	Envirogas, Incorporated	Envirogas, Incorporated
TOWNSHIP	Conneaut	Conneaut	Albion	Waterford	Greene	Greene	Greene	Venango	Venango	Venango
QUADRANGLE	Beaver Center	East Springfield	Albion	Cambridge Spgs, NE	Hammet	Hammett	Hammett	Wattsburg	Wattsburg	Wattsburg
LATITUDE	75 ft. S 41°52'30"	950 ft. S 41°55'00"	11,400 ft. S 41°55'00"	8,330 ft. S 42°00'00"	550 ft. S 42°02'30"	8,850 ft. S 42°02'30"	4,020 ft. S 42°02'30"	8,850 ft. S 42°05'00"	8,900 ft. S 42°05'00"	9,750 ft. S 42°05'00"
LONGITUDE	6,540 ft. W 80°25'00"	4,010 ft. W 80°22'30"	6,050 ft. W 80°20'00"	9,450 ft. W 80°00'00"	4,700 ft. W 79°57'30"	6,935 ft. W 79°55'00"	9,500 ft. W 79°55'00"	8,850 ft. W 79°45'00"	8,300 ft. W 79°45'00"	5,000 ft. W 79°45'00"
DATE COMPLETED	9-14-84	9-12-84	8-26-84	10-16-84	10-2-84	12-15-84	11-14-84	9-16-84	9-1-84	8-26-84
ELEVATION	928 GR	862 GR	970 GR	1248 GR	1297 GR	1386 GR	1300 GR	1680 GR	1660 GR	1660 GR
LOGS RECEIVED AND LOGGED INTERVALS			DBC/GR: 1500-3522	FOC: 2000-3722 GR: 3400-3696	MERGE: 1950-3678	MERGE: 2100-3870				
TULLY LIMESTONE	1720-	1660-	1858-	2044-	2000-	2170-	2057-	2576-	2538-	2540-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	1950-	1830-	2038-	2264-	2234-	2396-	2282- Bois Blanc 2466-		2767- Bois Blanc 2954-	2774-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	Bois Blanc 2182-	Bois Blanc 2060-		2516-	2476-	2644-	2528-	Bois Blanc 2988-	3000-	Bois Blanc 2960-
SILURIAN-DEVONIAN CARBONATES	2226-	2090-	2302-	2544-	2488-	2658-	2555-	3040-	3011-	2997-
SALINA GROUP LOCKPORT DOLOMITE	2304- 2830-	2190- 2650-	2386- 2910-	2634- 3158-	2578- 3066-	2740- 3245-	2627- 3138-	3146- 3537-	3092- 3525-	3124- 3536-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3110-	2950-	3180- 3228-	3401- 3456-	3327- 3382-	3500- 3558-	3385- 3438-	3781- 3852-	3770- 3837-	3784- 3850-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3196-	3060-	3251- 3380- 3428-	3500- 3606- 3648-	3414- 3541- 3572-	3580- 3700- 3753-	3466- 3558- 3628-	3898- 3998- 4036-	3881- 3990- 4015-	3882- 4004- 4032-
QUEENSTON FORMATION	3376-	3200-	3432-	3657-	3582-	3758-	3638-	4055-	4033-	4048-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medine	Medina	Medina
PRODUCING INTERVAL	3227-3280	3112-3150	3300-3332	3521-3559	3464-3486	3632-3677	3502-3547	4044-4049	4022-4026	3918-3988
TOTAL DEPTH	3450	3270	3530	3726	3678	3870	3760	4160	4117	4125
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	25 Mcf AF 900 psi/72 hrs. development Bushnell-Lexington pool Conneaut field	30 Mcf AF 850 psi/72 hrs. development Bushnell-Lexington pool Conneaut field	600 Mcf AF 1,000 psi/48 hrs. development Lundys Lene pool Conneaut field	1,639 Mcf AF 1,010 psi/72 hrs. development Swails pool Drumlin field	875 Mcf AF 870 psi/72 hrs. development Godderd pool Erie field	1,958 Mcf AF 1,030 psi/72 hrs. development Godderd pool Erie field	84 Mcf Nat. 875 Mcf AF 960 psi/72 hrs. development Goddard pool Erie field	3,500 Mcf AF 1,080 psi/240 hrs. development Bailey Brook pool North East field	2,500 Mcf AF 1,180 psi/240 hrs. development Beiley Brook pool North East field	190 Mcf AF 1,020 psi/240 hrs. development Bailey Brook pool North East field

COUNTY Permit Number	Erie 049-24118	Erie 049-24119	Erie 049-24122	Erie 049-24123	Erie 049-24125	Erie 049-24126	Erie 049-24129	Erie 049-24130	Erie 049-24144	Erie 049-24147
NAME OF WELL	Nelson Thompson #1	Raymond Showman #1	Patrick Fifer #1	Ray Russell #2	Ira Hinkson #1A	S. Janes #2	Kelly Unit #1	Fred Kiedaisch #1	Gilkinson #1	George Carutis #1
OPERATOR	N.E.A. Cross Company	N.E.A. Cross Company	NRM Petroleum Corporation	NRM Petroleum Corporation	NRM Petroleum Corporation	Envirogas, Incorporated	Berea Oil & Gas Corporation	Paco, Incorporated	U. S. Energy Oevelopment Corp.	Envirogas, Incorporated
TOWNSHIP	Waterford	Washington	Amity	Waterford	Waterford	Venango	Harborcreek	Conneaut	Venango	Venango
QUADRANGLE	Waterford	Cambridge Spgs, NE	Union City	Waterford	Waterford	Wattsburg	Hammett	East Springfield	Wattsburg	Wattsburg
LATITUDE	3,650 ft. S 42°00'00"	12,500 ft. S 41°55'00"	3,310 ft. S 41°57'30"	2,700 ft. S 42°00'00"	720 ft. S 42°00'00"	11,450 ft. S 42°05'00"	8,000 ft. S 42°07'30"	14,750 ft. S 41°57'30"	2,500 ft. S 42°02'30"	11,600 ft. S 42°05'00"
LONGITUDE	8,000 ft. W 79°55'00"	6,900 ft. W 80°02'30"	4,430 ft. W 79°47'30"	10,080 ft. W 79°55'00"	2,830 ft. W 79°57'30"	7,900 ft. W 79°45'00"	10,700 ft. W 79°52'30"	4,675 ft. W 80°22'30"	9,550 ft. W 79°45'00"	4,300 ft. W 79°45'00"
DATE COMPLETED	9-6-84	9-27-84	12-31-84	2-27-85	12-10-84	10-6-84	10-3-84	9-16-84	2-11-85	1-19-85
ELEVATION	1410 GR	1420 GR	1388 GR	1372 GR	1310 GR	1580 GR	1270 GR	824 GR	1645 GR	1615 GR
LOGS RECEIVED AND LOGGED INTERVALS	OBC/GR: 1950-3948			FOC/GR: 2150-3878	FOC/GR: 2050-3808		OBC/GR: 0-3517 IL/GR: 398-3512 GR/T: 300-3518 STRATA: 3265-3417			FOC: 2200-4204
TULLY LIMESTONE	2234-	2546-	2498-	2180-	2098-	2480-	1928-	1610-	2574-	2482-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2458-	2770-	2738-	2402-	2329-	2776-	2156-	1780-	2804-	2720-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	2708-		Bois Blanc 2906-	2658-	2576-	Bois Blanc 2910-	2388-		Bois Blanc 2978-	
SILURIAN-DEVONIAN CARBONATES	2726-		2957-	2674-	2596-	2948-	2404-	2056-	3023-	2946-
SALINA GROUP LOCKPORT DOLOMITE	2810- 3340-		3024- 3507-	2760- 3292-	2681- 3194-	3066- 3468-	2510- 2910-	2160- 2692-	3121- 3584-	3012- 3582-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3594- 3654-	3964-	3837- 3904-	3545- 3597-	3458- 3508-	3726- 3782-	3173- 3222-	2936- 2986-	3831- 3900-	3835- 3904-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3686- 3794- 3848-	4020- 4100- 4164-	3942- 4063- 4098-	3630- 3726- 3790-	3540- 3650- 3701-	3819- 3937- 3962-	3254- 3340- 3404-	3010- 3124- 3186-	3925- 4044- 4082-	3942- 4062- 4100-
QUEENSTON FORMATION	3856-	4174-	4116-	3798-	3710-	3979-	3416-	3190-	4096-	4112-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3748-3791	4030-4084	3996-4032	3656-3720	3565-3643	3971-3976	3280-3408	3034-3120	3957-4093	4042-4048
TOTAL DEPTH	3952	4291	4215	3882	3767	4026	3526	3270	4215	4131
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	800 Mcf AF 1,000 psi/48 hrs. development Talcott pool Erie field	500 Mcf AF 1,000 psi/48 hrs. development Edinboro North field	3,306 Mcf AF 1,160 psi/72 hrs. development Alder Run field	301 Mcf AF 1,030 psi/72 hrs. development Talcott pool Erie field	1,639 Mcf AF 930 psi/72 hrs. development Talcott pool Erie field	6,000 Mcf AF 1,190 psi/240 hrs. development Bailey Brook pool North East field	1,500 Mcf AF 1,100 psi/72 hrs. development Harborcreek pool Northeast field	30 Mcf AF 950 psi/72 hrs. development Bushnell-Lexington pool Conneaut field	1,150 Mcf AF 1,125 psi/74 hrs. development Carter Hill field	1,600 Mcf AF 1,160 psi/240 hrs. development Bailey Brook pool North East field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-24148	Erie 049-24150	Erie 049-24151	Erie 049-24158	Erie 049-24162	Erie 049-24163	Erie 049-24169	Erie 049-24170	Erie 049-24171	Erie 049-24175
NAME OF WELL	Robert & Velma Rimpa #1	Martin Tomcho #1	J. Tech #2	Terry Weiser #1	Hazer Brothers #4	Hazer Brothers #5	Earl Brace #1B	Ralph Heil #1	Steven Silay #1	John Wroblewski #2
OPERATOR	N.E.A. Cross Company	N.E.A. Cross Company	U. S. Energy Development Corp.	Mitch-Well Energy, Incorporated	Paco, Incorporated	Paco, Incorporated	NRM Petroleum Corporation	NRM Petroleum Corporation	NRM Petroleum Corporation	Envirogas, Incorporated
TOWNSHIP	LeBoeuf	Union	Venango	Greene	Conneaut	Conneaut	Waterford	Waterford	Waterford	Venango
QUADRANGLE	Waterford	Union City	Wattsburg	Hammett	Albion	Albion	Cambridge Spgs, NE	Cambridge Spgs, NE	Cambridge Spgs, NE	Wattsburg
LATITUDE	150 ft. S 41°55'00"	2,200 ft. S 41°55'00"	3,000 ft. S 42°02'30"	7,950 ft. S 42°02'30"	12,050 ft. S 41°57'30"	10,525 ft. S 41°57'30"	11,770 ft. S 42°00'00"	12,640 ft. S 42°00'00"	14,200 ft. S 42°00'00"	14,000 ft. S 42°05'00"
LONGITUDE	8,950 ft. W 79°52'30"	5,300 ft. W 79°50'00"	400 ft. W 79°47'30"	9,100 ft. W 79°55'00"	7,625 ft. W 80°20'00"	9,300 ft. W 80°20'00"	2,700 ft. W 80°02'30"	3,790 ft. W 80°02'30"	6,820 ft. W 80°02'30"	9,100 ft. W 79°47'30"
DATE COMPLETED	9-15-84	9-22-84	4-2-85	12-12-84	5-17-84	9-26-84	10-23-84	2-13-85	10-8-84	9-25-84
ELEVATION	1375 GR	1420 GR	1585 GR	1355 GR	859 GR	856 GR	1410 GR	1415 GR	1440 GR	1340 GR
LOGS RECEIVED AND LOGGED INTERVALS		FOC: 2500-4306	GR: 3820-4100 GR/OIL: 2500-4138		OBC/GR: 2144-3910		Merge: 2250-3940 PCL: 3600-3912	FOC/GR: 2250-3964	Merge: 2250-4006 PCL: 2900-3987	
TULLY LIMESTONE	2490-	2540-	2544-	2100-	2210-	1285-		2333-	2300-	2206-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2722-	2776-	2772-	2345-	2434-	1685-		2555-	2516-	
ORISKANY SANDSTONE RIDGELEY SANDSTONE		3008-		2596-	2686-	Bois Blanc 1845-	2820-	2824-	2752-	Bois Blanc 2610-
SILURIAN-DEVONIAN CARBONATES		3032-	3004-		2704-	2135-	2853-	2840-	2774-	2654-
SALINA GROUP LOCKPORT DOLOMITE		3076- 3652-	3078- 3532-		2790- 3282-	2195- 2725-	2950- 3452-	2910- 3428-	2868- 3384-	2774- 3224-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3896-	3904- 3974-	3781- 3851-	3504-	3539- 3596-	2999-	3650- 3701-	3622- 3672-	3620- 3690-	3470- 3536-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3930- 4038- 4088-	4012- 4122- 4170-	3878- 3995- 4040-	3540- 3661- 3706-	3638- 3706- 3784-	3085-	3723- 3854- 3896-	3693- 3822- 3870-	3732- 3842- 3885-	3570- 3678- 3712-
QUEENSTON FORMATION	4100-	4182-	4053-	3710-	3795-	3235-	3904-	3877-	3894-	3730-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3980-4032	4055-4118	3933-4050	3590-3639	3071-3180	3067-3154	3779-3810	3735-3813	3756-3798	3592-3724
TOTAL DEPTH	4226	4308	4162	3800	3349	3340	3940	3994	4006	3785
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	300 Mcf AF 800 psi/48 hrs. development Waterford pool LeBoeuf field	800 Mcf AF 900 psi/48 hrs. development Emmons pool Union City field	1,650 Mcf AF 1,100 psi/72 hrs. development Carter Hill field	1,500 Mcf AF 1,065 psi/48 hrs. development Goddard pool Erie field	40 Mcf AF 900 psi/72 hrs. development Bushnell-Lexington pool Conneaut field	45 Mcf AF 1,000 psi/72 hrs. development Bushnell-Lexington pool Conneaut field	467 Mcf AF 1,045 psi/72 hrs. development Swails pool Orumlin field	1,639 Mcf AF 1,040 psi/72 hrs. development Reeds Corners field	2,903 Mcf AF 1,110 psi/72 hrs. development Reeds Corners field	800 Mcf AF 1,050 psi/240 hrs. development Bailey Brook pool North East field

COUNTY Permit Number	Erie 049-24177	Erie 049-24178	Erie 049-24179	Erie 049-24180	Erie 049-24182	Erie 049-24184	Erie 049-24185	Erie 049-24187	Erie 049-24191	Erie 049-24197
NAME OF WELL	L. Brumagin #1	Lawrence Brumagin #3	Lawrence Yaple #3	Himrod #2	Stanley Orzepowski #1	William Lyons #3	Wassel Yurchak #2	R. Gilkinson #2	C. Young #3	Glenn Kimmy #1
OPERATOR	Envirogas, Incorporated	Envirogas, Incorporated	NRM Petroleum Corporation	Mitch-Well Energy, Incorporated	N.E.A. Cross Company	N.E.A. Cross Company	NRM Petroleum Corporation	U. S. Energy Development Corp.	Envirogas, Incorporated	NRM Petroleum Corporation
TOWNSHIP	Venango	Venango	Greene	Waterford	Waterford	Union	Greene	Venango	Harborcreek	Amity
QUADRANGLE	Wattsburg	Wattsburg	Hammett	Waterford	Waterford	Waterford	Hammett	Wattsburg	Hammett	Union City
LATITUDE	900 ft. S 42°02'30"	1,300 ft. S 42°02'30"	10,500 ft. S 42°02'30"	9,700 ft. S 42°00'00"	5,200 ft. S 42°00'00"	2,850 ft. S 41°55'00"	13,150 ft. S 42°02'30"	2,100 ft. S 42°02'30"	5,400 ft. S 42°07'30"	12,900 ft. S 42°00'00"
LONGITUDE	8,650 ft. W 79°47'30"	6,600 ft. W 79°47'30"	7,310 ft. W 79°55'00"	9,600 ft. W 79°57'30"	4,250 ft. W 79°55'00"	1,550 ft. W 79°52'30"	1,130 ft. W 79°55'00"	7,300 ft. W 79°45'00"	4,400 ft. W 79°57'30"	1,750 ft. W 79°47'30"
DATE COMPLETED	10-13-84	9-29-84	1-29-85	12-17-84	10-11-84	9-29-84	12-21-84	10-14-84	10-18-84	11-29-84
ELEVATION	1335 GR	1340 GR	1395 GR	1260 GR	1480 GR	1375 GR	1405 GR	1500 GR	1208 GR	1633 GR
LOGS RECEIVED AND LOGGED INTERVALS			FDC/GR: 2150-3850		DBC/GR: 2300-4047		FDC/GR: 2150-3910	DBC/CNL: 2420-4097 GR/IL: 2420-4096 Laser: 2670-3100		FDC/GR: 2650-4426
TULLY LIMESTONE	2217-	2242-	2164-	2062-	2344-	2456-	2188-	2446-	1824-	2714-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2446-	2473-	2388-	2290-	2570-	2694-	2416-	2682-	2048-	2953-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	Bois Blanc 2620-		2636-	2550-	2822-	2924-	2665-		Bois Blanc 2250-	
SILURIAN-DEVONIAN CARBONATES	2666-	2692-	2650-	2640-	2840-	2930-	2680-	2900-	2318-	3173-
SALINA GROUP LOCKPORT DOLOMITE	2738- 3232-	2806- 3248-	2734- 3244-	2668- 3192-	2924- 3446-	2970- 3552-	2764- 3296-	2974- 3460-	2432- 2786-	3248- 3793-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3476- 3542-	3500- 3560-	3504- 3558-	3440- 3431-	3708- 3760-	3805- 3874-	3550- 3600-	3704- 3774-	3026- 3096-	4039- 4114-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3576- 3672- 3724-	3592- 3708- 3740-	3590- 3707- 3750-	3501- 3630- 3693-	3784- 3958- 3954-	3910- 4020- 4070-	3634- 3742- 3794-	3807- 3902- 3957-	3120- 3250- 3278-	4150- 4248- 4307-
QUEENSTON FORMATION	3738-	3757-	3761-	3698-	3964-	4082-	3802-	3970-	3296-	4314-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3610-3733	3748-3753	3648-3690	3557-3612	3838-3882	3959-4003	3689-3707	3843-3967	3158-3292	4214-4238
TOTAL DEPTH	3815	3823	3856	3786	4047	4218	3914	4101	3389	4432
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	170 Mcf AF 1,050 psi/240 hrs. development Bailey Brook pool North East field	250 Mcf AF 1,050 psi/240 hrs. development Bailey Brook pool North East field	1,750 Mcf AF 960 psi/72 hrs. development Goddard pool Erie field	2,500 Mcf AF 1,120 psi/48 hrs. development Talcott pool Erie field	2,500 Mcf AF 1,000 psi/48 hrs. development Talcott pool Erie field	3,500 Mcf AF 1,100 psi/48 hrs. development Emmons pool Union City field	3,689 Mcf AF 1,040 psi/72 hrs. development Goddard pool Erie field	516 Mcf AF 1,125 psi/72 hrs. extension Carter Hill field	600 Mcf AF 650 psi/240 hrs. development Harborcreek pool North East field	1,517 Mcf AF 910 psi/72 hrs. development Alder Run field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-24198	Erie 049-24200	Erie 049-24201	Erie 049-24202	Erie 049-24203	Erie 049-24204	Erie 049-24205	Erie 049-24206	Erie 049-24208	Erie 049-24209
NAME OF WELL	Harold Smith #1	H. Van Epps Unit #1	L. Paris #1	R. Smith #2	Richard F. Allgeier #1	Carl Eliason #1	Robert Lawton #1	Alex Kieklak #2	D. Gifford #4	L. Austin #1
OPERATOR	NRM Petroleum Corporation	Ooran & Associates, Inc. #K-P-40	Ooran & Associates, Inc. #K-P-51	Ooran & Associates, Inc. #K-P-41	NRM Petroleum Corporation	N.E.A. Cross Company	N.E.A. Cross Company	Envirogas, Incorporated	Envirogas, Incorporated	Envirogas, Incorporated
TOWNSHIP	Amity	Venango	Venango	Amity	Greene	Greene	Waterford	Venango	Venango	Venango
QUADRANGLE	Union City	Hammett	Wattsburg	Union City	Hammett	Hammett	Waterford	Wattsburg	Wattsburg	Wattsburg
LATITUDE	600 ft. S 41°57'30"	3,950 ft. S 42°02'30"	7,400 ft. S 42°02'30"	4,430 ft. S 42°00'00"	14,060 ft. S 42°05'00"	12,150 ft. S 42°02'30"	4,400 ft. S 42°00'00"	7,150 ft. S 42°05'00"	5,850 ft. S 42°05'00"	15,125 ft. S 42°05'00"
LONGITUDE	1,500 ft. W 79°47'30"	2,200 ft. W 79°52'30"	2,850 ft. W 79°50'00"	6,390 ft. W 79°50'00"	3,910 ft. W 79°57'30"	4,600 ft. W 79°55'00"	800 ft. W 79°55'00"	11,000 ft. W 79°45'00"	5,400 ft. W 79°45'00"	5,200 ft. W 79°45'00"
DATE COMPLETED	3-4-85	10-14-84	1-17-85	10-9-84	3-19-85	10-22-84	10-17-84	10-23-84	11-13-84	11-04-84
ELEVATION	1662 GR	1525 GR	1490 GR	1340 GR	1281 GR	1480 GR	1530 GR	1648 GR	1730 GR	1583 GR
LOGS RECEIVED AND LOGGED INTERVALS	FOC/GR: 2700-4466	OBC/GR: 10-4010 OIL/LL: 429-4012 Laser: 3726-4014		DBC/GR: 486-4011 DIL/LL: 486-4015 T: 486-4012 Laser: 3690-4017	FOC/GR: 1950-3662	MERGE: 2100-3974	OBC/GR: 2100-4139			LTO: 0-4087 GR/OLL: 2076-4075
TULLY LIMESTONE	2770-	2328-	2400-	2296-	1993-	2291-	2396-	2544-	2620-	2502-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3010-	2554-	2624-	2530-	2220-	2518-	2610-	2776-	2852-	2740-
ORISKANY SANDSTONE RIDGELEY SANDSTONE					2474-		2863-	Bois Blanc 2954-	Bois Blanc 3048-	
SILURIAN-DEVONIAN CARBONATES	3228-	2798-	2855-	2766-	2482-	2767-	2880-	3008-	3090-	2962-
SALINA GROUP LOCKPORT DOLOMITE	3302- 3852-	2882- 3378-	2930- 3430-	2850- 3410-	2564- 3046-	2866- 3404-	2962- 3514-	3107- 3502-	3196- 3576-	3036- 3506-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4124- 4174-	3646- 3698-	3678- 3745-	3640- 3694-	3316- 3368	3642- 3698-	3766- 3814-	3750- 3812-	3826- 3893-	3749- 3810-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	4208- 4306- 4364-	3731- 3834- 3888-	3767- 3887- 3931-	3728- 3846- 3882-	3399- 3486- 3556-	3730- 3843- 3888-	3838- 3951- 4006-	3848- 3970- 3990-	3935- 4042- 4073-	3847- 3964- 3998-
QUEENSTON FORMATION	4376-	3896-	3943-	3898-	3566-	3898-	4014-	4013-	4090-	4015-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4270-4295	3764-3888	3818-3862	3763-3892	3444-3470	3764-3802	3894-3938	3999-4010	4006-4087	3918-4013
TOTAL DEPTH	4470	4042	4067	4033	3666	3981	4145	4119	4162	4090
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	270 Mcf AF 960 psi/72 hrs. development Alder Run field	1,299 Mcf AF 950 psi/72 hrs. extension Oennee pool Phillipsville field	119 Mcf AF 665 psi/72 hrs. development Wattsburg pool North East field	3,391 Mcf AF 1,000 psi/72 hrs. development Wattsburg pool North East field	311 Mcf AF 920 psi/72 hrs. development Goddard pool Erie field	2,500 Mcf AF 1,100 psi/48 hrs. extension Goddard pool Erie field	500 Mcf AF 1,000 psi/48 hrs. development Talcott pool Erie field	25 Mcf AF ? psi/240 hrs. development Bailey Brook pool North East field	1,000 Mcf AF 1,130 psi/240 hrs. development Bailey Brook pool North East field	580 Mcf AF 1,150 psi/240 hrs. development Bailey Brook pool North East field

COUNTY Permit Number	Erie 049-24210	Erie 049-24213	Erie 049-24215	Erie 049-24216	Erie 049-24219	Erie 049-24234	Erie 049-24242	Erie 049-24243	Erie 049-24244	Erie 049-24248
NAME OF WELL	Michael Koprowski #1	Chester Burns #1	General McLane School #1	Ann & Betty Sweny #1	Joseph L. May #2	O. Gifford #3	John Greishaw #1	Ernest Roberts #1	S. Janes #1	James DeSantis #1
OPERATOR	Envirogas, Incorporated	Troyer Gas & Oil Company	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	Envirogas, Incorporated	N.E.A. Cross Company	N.E.A. Cross Company	Envirogas, Incorporated	Old Mountain Gas Company, Inc.
TOWNSHIP	Venango	Waterford	Washington	Waterford	LeBoeuf	Venango	Union	Waterford	Venango	Waterford
QUADRANGLE	Wattsburg	Cambridge Spgs, NE	Cambridge Spgs, NE	Cambridge Spgs, NE	Cambridge Spgs, NE	Wattsburg	Union City	Cambridge Spgs, NE	Wattsburg	Cambridge Springs
LATITUDE	14,850 ft. S 42°05'00"	5,050 ft. S 42°00'00"	200 ft. S 41°55'00"	1,750 ft. S 42°00'00"	7,550 ft. S 41°55'00"	6,350 ft. S 42°05'00"	3,350 ft. S 41°55'00"	12,650 ft. S 42°00'00"	9,750 ft. S 42°05'00"	5,425 ft. S 42°00'00"
LONGITUDE	7,150 ft. W 79°45'00"	5,200 ft. W 80°00'00"	10,400 ft. W 80°05'00"	7,450 ft. W 80°00'00"	4,550 ft. W 80°00'00"	3,750 ft. W 79°45'00"	8,850 ft. W 79°50'00"	8,650 ft. W 80°02'30"	1,80D ft. W 79°47'30"	5,95D ft. W 80°00'00"
DATE COMPLETED	10-27-84	7-17-85	10-23-84	11-10-84	10-30-84	10-31-84	11-4-84	10-29-84	11-29-84	10-29-84
ELEVATION	1488 GR	1459 GR	1290 GR	1430 GR	1450 GR	1715 GR	1310 GR	1440 GR	1640 GR	1490 GR
LOGS RECEIVED AND LOGGED INTERVALS			Merge: 2000-3950				OBC/GR: 2200-4234			
TULLY LIMESTONE	2393-	2250-	2296-	2210-	2568-	2606-	2470-	2340-	2518-	2285-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2624-	2550-	2506-	2433-	2790-	2838-	2704-	2553-	2753-	2500-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	Bois Blanc 2800-					Bois Blanc 3022-			Bois Blanc 2940-	2720-
SILURIAN-DEVONIAN CARBONATES	2843-	2748-	2780-			3056-	2971-		2980-	
SALINA GROUP LOCKPORT DOLOMITE	2948- 3400-		2844- 3356-			3166- 3560-	2991- 3580-		3088- 3494-	2750- 3320-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3644- 3710-		3632- 3680-	3596-	3877-	3810- 3871-	3856- 3903-	3696-	3744- 3800-	3520-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3749- 3864- 3892-		3714- 3833- 3874-	3625- 3730- 3784-	4012- 4110- 4175-	3912- 4028- 4056-	3940- 4058- 4100-	3750- 3830- 3890-	3833- 3954- 3980-	3650- 3820-
QUEENSTON FORMATION	3910-		3882-	3795-	4185-	4074-	4112-	3900-	3997-	3840-
PRODUCING FORMATION	Medina	Bois Blanc	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3900-3907	2748-2750	3763-3793	3686-3703	4065-4088	4063-4071	4002-4030	3788-3808	3988-3994	3771-3798
TOTAL DEPTH	3973	2750	3996	3917	4293	4159	4238	4019	4072	3935
DEEPEST FORMATION REACHED	Queenston	Silurian-Devonian	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	IP not available development Bailey Brook pool North East field	2,000 Mcf Nat. 410 psi/72 hrs. development Greenley pool Orumlin field	3,200 Mcf AF 1,100 psi/48 hrs. development Edinboro field	400 Mcf AF 1,150 psi/48 hrs. development Swails pool Orumlin field	3,500 Mcf AF 800 psi/48 hrs. development Mill Village field	IP not avallable development Bailey Brook pool North East field	1,100 Mcf AF 1,150 psi/48 hrs. development Emmons pool Union City field	3,500 Mcf AF 1,100 psi/48 hrs. development Reeds Corners field	3,700 Mcf AF 1,070 psi/240 hrs. development Bailey Brook pool North East field	1,800 Mcf AF 1,050 psi/72 hrs. development Swails pool Orumlin field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-24251	Erie 049-24252	Erie 049-24253	Erie 049-24254	Erie 049-24256	Erie 049-24270	Erie 049-24273	Erie 049-24274	Erie 049-24288	Erie 049-24290
NAME OF WELL	J. Yost #3	M. Koprowski #2	M. Koprowski #3	J. Yost #2	T. Shuhart #3	Glenn Troyer Farms #8H	David K. Rose #1	Vincent Carniewski #1	Fred Kibbe #1	William Loper #3
OPERATOR	Envirogas, Incorporated	Envirogas, Incorporated	Envirogas, Incorporated	Envirogas, Incorporated	Envirogas, Incorporated	Glenn V. Troyer	NRM Petroleum Corporation	NRM Petroleum Corporation	N.E.A. Cross Company	N.E.A. Cross Company
TOWNSHIP	Venango	Venango	Venango	Venango	Venango	Waterford	Amity	Greene	Greene	Waterford
QUADRANGLE	Wattsburg	Wattsburg	Wattsburg	Wattsburg	Wattsburg	Waterford	Union City	Hammett	Hammett	Cambridge Spgs, NE
LATITUDE	8,900 ft. S 42°05'00"	12,900 ft. S 42°05'00"	13,350 ft. S 42°02'30"	8,850 ft. S 42°05'00"	7,300 ft. S 42°05'00"	75 ft. S 41°55'00"	12,430 ft. S 42°00'00"	10,720 ft. S 42°05'00"	13,300 ft. S 42°02'30"	1,250 ft. S 41°57'30"
LONGITUDE	7,050 ft. W 79°47'30"	6,400 ft. W 79°45'00"	8,350 ft. W 79°45'00"	5,300 ft. W 79°47'30"	6,300 ft. W 79°47'30"	5,250 ft. W 79°57'30"	10,880 ft. W 79°47'30"	7,790 ft. W 79°55'00"	2,800 ft. W 79°57'30"	4,400 ft. W 80°02'30"
DATE COMPLETED	11-04-84	11-10-84	12-28-84	11-12-84	11-20-84	11-20-84	12-6-84	3-8-85	12-1-84	11-20-84
ELEVATION	1480 GR	1610 GR	1560 GR	1470 GR	1503 GR	1170 GR	1350 GR	1362 GR	1260 GR	1440 GR
LOGS RECEIVED AND LOGGED INTERVALS	DBC/GR: 428-3886 GR/DLL: 1800-3876						FDC/GR: 2300-4122	FDC/GR: 2100-3696		DBC/GR: 2050-4021
TULLY LIMESTONE	2336-	2513-	2470-	2337-	2350-	2256-	2386-	2126-	2030-	2358-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2570-	2748-	2706-	2569-	2581-	2472-	2622-	2356-	2260-	2576-
ORISKANY SANDSTONE RIDGELEY SANDSTONE		Bois Blanc 2935-	Bois Blanc 2890-	Bois Blanc 2758-	Bois Blanc 2774-					
SILURIAN-DEVONIAN CARBONATES	2798-	2974-	2925-	2798-	2840-	2730-	2898-	2598-		2838-
SALINA GROUP LOCKPORT DOLOMITE	2872- 3310-	3093- 3504-	3041- 3466-	2913- 3310-	2950- 3328-	3192- 3228-	2932- 3503-	2681- 3148-		2922- 3407-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3556- 3622-	3746- 3813-	3722- 3781-	3553- 3629-	3576- 3640-	3600- 3671-	3745- 3799-	3362- 3418-	3426-	3660- 3717-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3652- 3754- 3806-	3847- 3965- 3996-	3816- 3925- 3962-	3651- 3773- 3799-	3671- 3786- 3818-	3695- 3830- 3858-	3834- 3950- 3998-	3460- 3562- 3608-	3460- 3564- 3619-	3751- 3834- 3907-
QUEENSTON FORMATION	3820-	4012-	3979-	3815-	3836-	3869-	4009-	3620-	3628-	3915-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3812-3818	4004-4010	3880-3975	3675-3813	3826-3834	3763-3823	3902-3945	3315-3560	3498-3544	3819-3833
TOTAL DEPTH	3890	4090	4055	3888	3937	3993	4122	3705	3750	4060
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,300 Mcf AF 950 psi/240 hrs. development Bailey Brook pool North East field	3,500 Mcf AF 1,120 psi/240 hrs. development Bailey Brook pool North East field	1,500 Mcf AF 1,080 psi/240 hrs. development Bailey Brook pool North East field	250 Mcf AF 990 psi/240 hrs. development Bailey Brook pool North East field	Dry and abandoned development Bailey Brook pool North East field	300 Mcf AF 800 psi/48 hrs. development Waterford pool LeBoeuf field	1,639 Mcf AF 1,010 psi/72 hrs. development Alder Run field	311 Mcf AF 1,020 psi/72 hrs. development Goddard pool Erie field	1,500 Mcf AF 1,100 psi/48 hrs. development Goddard pool Erie field	2,500 Mcf AF 1,000 psi/48 hrs. development Reeds Corners field

COUNTY Permit Number	Erie 049-24291	Erie 049-24292	Erie 049-24293	Erie 049-24302	Erie 049-24303	Erie 049-24307	Erie 049-24309	Erie 049-24310	Erie 049-24312	Erie 049-24314
NAME OF WELL	S. Janes #5	Joseph Kozik #1	Everett Fenno #1	Ralph Osborn #1	Harold Osborn #2	H. Brooks #1	Glenn Ross #1	Joseph Luciano #1	August Gorka #1	Robert Volkmar #1
OPERATOR	Envirogas, Incorporated	NRM Petroleum Corporation	NRM Petroleum Corporation	Vineyard Oil & Gas Company	Vineyard Oil & Gas Company	Envirogas, Incorporated	Ooran & Associates, Inc., #K-P-46	Doran & Associates, Inc., #K-P-49	NRM Petroleum Corporation	NRM Petroleum Corporation
TOWNSHIP	Venango	Greene	Amity	Summit	Summit	Venango	Amity	Venango	Amity	Amity
QUADRANGLE	Wattsburg	Hammett	Union City	Erie South	Erie South	Wattsburg	Union City	Wattsburg	Union City	Union City
LATITUDE	9,000 ft. S 42°05'00"	700 ft. S 42°02'30"	3,250 ft. S 41°57'30"	4,600 ft. S 42°02'30"	11,800 ft. S 42°02'30"	5,100 ft. S 42°05'00"	5,150 ft. S 42°00'00"	10,250 ft. S 42°05'00"	4,900 ft. S 41°57'30"	7,950 ft. S 42°00'00"
LONGITUDE	10,200 ft. W 79°45'00"	9,550 ft. W 79°55'00"	1,500 ft. W 79°47'30"	3,450 ft. W 80°00'00"	5,550 ft. W 80°00'00"	8,000 ft. W 79°45'00"	7,050 ft. W 79°45'00"	7,825 ft. W 79°47'30"	8,800 ft. W 79°47'30"	2,800 ft. W 79°47'30"
DATE COMPLETED	11-19-84	12-3-84	2-21-85	1-5-85	1-12-85	12-5-84	12-18-84	1-9-85	3-15-85	2-26-85
ELEVATION	1660 GR	1323 GR	1527 GR	1230 GR	1330 GR	1660 GR	1440 GR	1490 GR	1420 GR	1520 GR
LOGS RECEIVED AND LOGGED INTERVALS		FDC/GR: 2000-3728	FOC/GR: 2600-4362				OBC/CNL/GR: 464-4150 OIL/LL: 465-4152 Laser: 3870-4050	DBC/GR: 460-3952 OIL/LL: 460-3954 Laser: 3670-3846	FOC/GR: 2450-4260	FOC/GR: 2500-4232
TULLY LIMESTONE	2552-	2062-	2654-	1915-	2132-	2541-	2448-	2328-	2528-	2557-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2785-	2291-	2894-	2135-	2360-	2772-	2687-	2560-	2766-	2796-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	Bois Blanc 2976-	2536-		2382-	2612-	Bois Blanc 2950-				
SILURIAN-DEVONIAN CARBONATES	3019-	2547-	3108-			2996-	2876-	2789-	2986-	3044-
SALINA GROUP LOCKPORT DOLOMITE	3130- 3523-	2630- 3161-	3177- 3734-	2500- 2992-	3082- 3236-	3090- 3480-	3016- 3527-	2864- 3334-	3056- 3616-	3122- 3628-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3767- 3834-	3374- 3433-	3993- 4058-	3227- 3296-	3478- 3530-	3730- 3791-	3793- 3844-	3578- 3642-	3876- 3938-	3888- 3948-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3870- 3993- 4014-	3465- 3553- 3622-	4091- 4175- 4250-	3316- 3444- 3480-	3560- 3688- 3720-	3832- 3940- 3972-	3881- 3997- 4032-	3673- 3770- 3826-	3974- 4094- 4130-	3983- 4086- 4139-
QUEENSTON FORMATION	4034-	3632-	4262-	3498-	3728-	3992-	4046-	3840-	4141-	4148-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4025-4030	3493-3543	4125-4170	3358-3441	3588-3726	3983-3989	3907-4038	3701-3830	4034-4072	4050-4084
TOTAL DEPTH	4134	3698	4365	3650	3815	4095	4184	3956	4264	4235
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	Dry and abandoned development Bailey Brook pool North East field	531 Mcf AF 1,030 psi/72 hrs. development Goddard pool Erie field	1,073 Mcf AF 1,095 psi/72 hrs. development Alder Run field	850 Mcf AF 850 psi/48 hrs. development Talcott pool Erie field	800 Mcf AF 800 psi/168 hrs. development Talcott pool Erie field	IP not available development Bailey Brook pool North East field	470 Mcf AF 1,225 psi/72 hrs. extension Carter Hill field	119 Mcf AF 1,020 psi/72 hrs. development Bailey Brook pool North East field	103 Mcf AF 980 psi/76 hrs. development Alder Run field	1,237 Mcf AF 1,170 psi/72 hrs. development Alder Run field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-24316	Erie 049-24317	Erie 049-24320	Erie 049-24324	Erie 049-24325	Erie 049-24326	Erie 049-24327	Erie 049-24337	Erie 049-24340	Erie 049-24356
NAME OF WELL	Hinson-Kress #1	Valentine Ostermann #2	Stoffan #1	G. Proctor Unit #4	P. Carlson #1	W. Oombrowski #1	M. Rutkowski #1	L. Berg #1	John McClellan #1	William Kaschak #1A
OPERATOR	NRM Petroleum Corporation	N.E.A. Cross Company	Vineyard Oil & Gas Company	Ooran & Associates, Inc. #K-P-53	Ooran & Associates, Inc. #K-P-55	Ooran & Associates, Inc. #K-P-52	Ooran & Associates, Inc. #K-P-50	Ooran & Associates, Inc. #K-P-56	N.E.A. Cross Company	NRM Petroleum Corporation
TOWNSHIP	Greene	LeBoeuf	Venango	Venango	Venango	Venango	Venango	Venango	Waterford	Greene
QUADRANGLE	Hammett	Cambridge Spgs, NE	Wattsburg	Wattsburg	Hammett	Wattsburg	Wattsburg	Wattsburg	Waterford	Hammett
LATITUDE	14,600 ft. S 42°02'30"	7,850 ft. S 41°55'00"	11,500 ft. S 42°05'00"	14,475 ft. S 42°05'00"	10,750 ft. S 42°02'30"	0 ft. S 42°02'30"	12,300 ft. S 42°05'00"	9,400 ft. S 42°02'30"	1,650 ft. S 42°00'00"	9,425 ft. S 41°02'30"
LONGITUDE	3,800 ft. W 79°57'30"	400 ft. W 80°00'00"	7,800 ft. W 79°47'30"	10,600 ft. W 79°45'00"	3,575 ft. W 79°52'30"	2,025 ft. W 79°47'30"	8,600 ft. W 79°47'30"	5,375 ft. W 79°45'00"	10,450 ft. W 79°57'30"	10,340 ft. W 79°55'00"
DATE COMPLETED	1-14-85	12-14-84	12-2-84	1-27-85	2-6-85	1-22-85	1-13-85	2-17-85	2-3-85	1-9-85
ELEVATION	1253 GR	1240 GR	1495 GR	1670 GR	1460 GR	1590 GR	1460 GR	1335 GR	1220 GR	1352 GR
LOGS RECEIVED AND LOGGED INTERVALS	FOC/GR: 2020-3734			OBC/GR: 448-4230 DIL/LL: 448-4234 Laser: 3970-4140 T: 448-4216	OBC/GR: 496-4002 OIL/OLL: 462-4002 Laser: 3712-3896	OBC/GR: 462-4119 OIL/LL: 462-4123 Laser: 3840-4020 T: 463-4070		OBC/GR: 462-3987 OIL/LL: 2450-3989 Laser: 3690-3800		FOC/GR: 2050-3774
TULLY LIMESTONE	2030-	2397-	2350-	2602-	2314-	2486-	2314-	2268-	1906-	2110-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2261-	2622-	2586-	2834-	2540-	2718-	2546-	2506-	2216-	2338-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	2510-		2812-		2784-	2904-	2734-			2585-
SILURIAN-DEVONIAN CARBONATES	2532-			3054-	2794-	2921-	2773-	2717-		2602-
SALINA GROUP LOCKPORT DOLOMITE	2614- 3120-		3285- 3362-	3128- 3620-	2874- 3388-	3012- 3528-	2847-	2802- 3344-		2684- 3288-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3390- 3438-	3800-	3606- 3620-	3864- 3933-	3638- 3695-	3766- 3813-	3574- 3642-	3602- 3664-	3390-	3464- 3511-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3471- 3583- 3630-	3834- 3960- 4000-	3700- 3824- 3855-	3968- 4054- 4118-	3707- 3840- 3882-	3848- 3960- 3996-	3673- 3822-	3697- 3792- 3846-	3420- 3530- 3580-	3533- 3658- 3708-
QUEENSTON FORMATION	3640-	4010-	3865-	4132-	3892-	4010-	3833-	3864-	3591-	3715-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3514-3568	3873-3903	3743-3860	4030-4125	3769-3823	3887-4003	3706-3826	3733-3850	3452-3501	3592-3614
TOTAL DEPTH	3738	4130	3964	4244	4011	4138	3945	4000	3696	3777
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,517 Mcf AF 940 psi/72 hrs. development Talcott pool Erie field	1,000 Mcf AF 800 psi/48 hrs. development Mill Village field	250 Mcf AF 750 psi/96 hrs. development Bailey Brook pool North East field	1,694 Mcf AF 1,175 psi/72 hrs. development Bailey Brook pool North East field	50 Mcf AF 1,050 psi/72 hrs. development Dennee pool Phillipsville field	242 Mcf AF 1,115 psi/72 hrs. development Bailey Brook pool North East field	300 Mcf AF 915 psi/72 hrs. development Bailey Brook pool North East field	377 Mcf AF 1,150 psi/72 hrs. development Carter Hill field	600 Mcf AF 1,100 psi/48 hrs. development Talcott pool Erie field	1,858 Mcf AF 940 psi/72 hrs. development Goddard pool Erie field

COUNTY Permit Number	Erie 049-24357	Erie 049-24371	Erie 049-24376	Erie 049-24379	Erie 049-24380	Erie 049-24382	Erie 049-24386	Erie 049-24391	Erie 049-24394	Erie 049-24395
NAME OF WELL	John Hanas #3	Presque Isle Field Archers #1	E. Dombrowski #4	Raymond Dorazio #1	Ronald Chapman #1	Joseph Przybycien #1	Emory Metzler #1	Alex Lemock #2	D. Waite Unit #1	Gorny #1
OPERATOR	N.E.A. Cross Company	Vineyard Oil & Gas Company	Envirogas, Incorporated	Vineyard Oil & Gas Company	N.E.A. Cross Company	NRM Petroleum Corporation	N.E.A. Cross Company	NRM Petroleum Corporation	Doran & Associates, Inc. #K-P-54	Robert H. Brace
TOWNSHIP	LeBoeuf	Waterford	Venango	McKean	Greene	Waterford	Waterford	Waterford	Venango	Waterford
QUADRANGLE	Cambridge Spgs, NE	Cambridge Spgs, NE	Wattsburg	Cambridge Spgs, NE	Hammett	Cambridge Spgs, NE	Cambridge Spgs, NE	Cambridge Spgs, NE	Wattsburg	Cambridge Spgs, NE
LATITUDE	11,400 ft. S 41°55'00"	2,500 ft. S 42°00'00"	50 ft. S 42°02'30"	750 ft. S 42°00'00"	9,600 ft. S 42°02'30"	14,100 ft. S 42°00'00"	200 ft. S 41°55'00"	350 ft. S 41°57'30"	4,450 ft. S 42°02'30"	10,000 ft. S 42°00'00"
LONGITUDE	1,800 ft. W 80°00'00"	3,850 ft. W 80°00'00"	3,800 ft. W 79°47'30"	2,600 ft. W 80°02'30"	5,400 ft. W 79°55'00"	8,200 ft. W 80°02'30"	5,150 ft. W 80°02'30"	8,200 ft. W 80°02'30"	1,190 ft. W 79°50'00"	4,400 ft. W 80°00'00"
DATE COMPLETED	12-22-84	12-29-84	12-19-84	1-17-85	2-19-85	1-9-85	3-8-85	2-8-85	2-1-85	4-21-85
ELEVATION	1300 GR	1300 GR	1590 GR	1360 GR	1430 GR	1480 GR	1485 GR	1530 GR	1312 GR	1370 GR
LOGS RECEIVED AND LOGGED INTERVALS					DBC/GR: 1898-3920	MERGE: 2300-4045	DBC/GR: 2200-4219	FDC/GR: 2400-4102	DBC/GR: 461-3852 DIL/LL: 461-3854 Laser: 2430-2700	
TULLY LIMESTONE	2470-	2086-	2477-	2100-	2222-		2554-	2417-	2208-	2140-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2694-	2315-	2707-	2321-	2446-	2588-	2770-	2634-	2438-	2360-
ORISKANY SANDSTONE RIDGELEY SANDSTONE		2600-	Bois Blanc 2888-	2578-		2834-		2874-		2594-
SILURIAN-DEVONIAN CARBONATES			2925-		2692-	2846-	3036-	2892-	2658-	
SALINA GROUP LOCKPORT DOLOMITE		2620- 3368-	3046- 3486-	3034- 3182-	2790- 3312-	2926- 3421-	3100- 3608-	2978- 3575-	2736- 3220-	
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3868-	3409- 3482-	3732- 3799-	3432- 3502-	3560- 3616-	3682- 3740-	3881- 3932-	3757- 3814-	3486- 3534-	
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3900- 4030- 4068-	3502- 3626- 3671-	3829- 3948- 3980-	3531- 3641- 3693-	3651- 3746- 3806-	3761- 3887- 3932-	3954- 4068- 4128-	3837- 3934- 4004-	3567- 3680- 3724-	
QUEENSTON FORMATION	4078-	3682-	3999-	3699-	3816-	3940-	4136-	4012-	3736-	
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Bois Blanc
PRODUCING INTERVAL	3962-3979	3541-3679	3987-3996	3570-3661	3695-3745	3803-3844	4006-4063	3868-3928	3613-3729	2594-2596
TOTAL DEPTH	4196	3785	4090	3785	3924	4045	4248	4102	3856	2598
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Silurian-Devonian
RESULTS	9,500 Mcf AF 700 psi/48 hrs. development Mill Village field	1,600 Mcf AF 910 psi/168 hrs. development Swails pool Drumlin field	500 Mcf AF 1,130 psi/240 hrs. development Bailey Brook pool North East field	1,100 Mcf AF 980 psi/168 hrs. development Swails pool Drumlin field	4,000 Mcf AF 1,060 psi/48 hrs. development Goddard pool Erie field	1,750 Mcf AF 1,050 psi/72 hrs. development Reeds Corners field	500 Mcf AF 1,150 psi/48 hrs. development Edinboro North field	311 Mcf AF 900 psi/72 hrs. development Reeds Corners field	169 Mcf AF 1,000 psi/72 hrs. development Wattsburg pool North East field	1,000 Mcf Nat. 500 psi/48 hrs. development Greenley pool Drumlin field

Figure 33. *(Continued)*.

COUNTY Permit Number	Erie 049-24396	Erie 049-24397	Erie 049-24401	Erie 049-24403	Erie 049-24410	Erie 049-24423	Erie 049-24426	Erie 049-24430	Erie 049-24431	Erie 049-24433
NAME OF WELL	Burbules #3	Gallagher #1	Kibbe Unit #3	Jack Snyder #2	Frank Schlaak #1	Waste Management #1	Specialty Packaging Products, Inc.	Robert Youngberg #1	John Waterhouse #1	Maude E. King #1
OPERATOR	Robert H. Brace	Commodore Energy Company	Kaltsas Oil Company, Inc.	Troyer Gas & Oil Company	Kaltsas Oil Company, Inc.	Envirogas, Incorporated	Specialty Packaging Products, Inc.	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company
TOWNSHIP	Waterford	Waterford	LeBoeuf	Waterford	Venango	Wayne	Erie	LeBoeuf	LeBoeuf	LeBoeuf
QUADRANGLE	Cambridge Spgs, NE	Waterford	Cambridge Springs	Cambridge Spgs, NE	Wattsburg	Union City	Erie South	Millers Station	Cambridge Spgs, NE	Millers Station
LATITUDE	12,950 ft. S 42°00'00"	8,500 ft. S 41°57'30"	8,600 ft. S 41°52'30"	8,400 ft. S 42°00'00"	3,900 ft. S 42°05'00"	5,350 ft. S 42°00'00"	2,550 ft. S 42°07'30"	8,100 ft. S 41°52'30"	5,100 ft. S 41°52'30"	8,000 ft. S 41°52'30"
LONGITUDE	4,550 ft. W 80°00'00"	10,300 ft. W 79°52'30"	6,250 ft. W 80°00'00"	4,150 ft. W 80°00'00"	7,850 ft. W 79°50'00"	450 ft. W 79°45'00"	1,050 ft. W 80°05'00"	9,300 ft. W 79°57'30"	2,050 ft. W 80°00'00"	7,950 ft. W 79°57'30"
DATE COMPLETED	1-16-85	2-7-85	5-14-85	7-17-85	6-9-85	2-4-85	4-20-85	2-26-85	3-2-85	3-13-85
ELEVATION	1300 GR	1430 GR	1395 GR	1466 GR	1394 GR	1630 GR	690 GR	1230 GR	1390 GR	1150 GR
LOGS RECEIVED AND LOGGED INTERVALS								OBC/GR: 2197-4235		OBC/GR: 2099-4157
TULLY LIMESTONE	2090-	2458-	2634-	2207-	2204-	2662-	1232-	2514-	2612-	2426-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2311-	2690-	2856-	2423-	2431-	2904- Bois Blanc 3086-	1446-	2734-	2838-	2642-
ORISKANY SANDSTONE RIDGELEY SANDSTONE						3130-	1707-			
SILURIAN-DEVONIAN CARBONATES		2920-		2679-		3140-		2940-		2854-
SALINA GROUP LOCKPORT DOLOMITE	2737- 3114-	3050- 3460-	3430- 3674-		2991- 3150-	3261- 3750-	2040-	3002- 3591-		2916- 3510-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3482-		4008- 4062-		3407- 3462-	4011- 4064-		3860- 3916-	4038-	3774- 3828-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3550- 3619- 3656-	3890- 3990- 4030-	4110- 4223- 4264-		3519- 3614- 3639-	4100- 4223- 4254-	2520- 2690-	3954- 4060- 4118-	4062- 4190- 4240-	3864- 3994- 4032-
QUEENSTON FORMATION	3724-	4060-	4274-		3656-	4270-	2700-	4128-	4252-	4044-
PRODUCING FORMATION	Medina	Medina	Medina	Bois Blanc	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3594-3663	3946-3986	4133-4270	2679-2683	3523-3654	4132-4263	2546-2590	4009-4036	4112-4179	3910-3976
TOTAL DEPTH	3801	4178	4347	2683	3735	4357	2754	4245	4356	4161
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Silurian-Devonian	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,500 Mcf AF 1,050 psi/108 hrs. development Swails pool Orumlin field	500 Mcf AF 50 psi/72 hrs. development Waterford pool LeBoeuf field	250 Mcf AF 1,075 psi/72 hrs. development Mill Village field	2,000 Mcf Nat. 410 psi/72 hrs. development Greenley pool Drumlin field	919 Mcf AF 1,100 psi/72 hrs. development Hornby pool North East field	500 Mcf AF 1,000 psi/240 hrs. development Carter Hill field	1,300 Mcf AF 970 psi/? hrs. development Charter Oaks pool Erie field	500 Mcf AF 1,150 psi/48 hrs. development Mill Village field	11,000 Mcf AF 1,100 psi/48 hrs. development Mill Village field	1,000 Mcf AF 1,150 psi/48 hrs. development Mill Village field

COUNTY Permit Number	Erie 049-24434	Erie 049-24441	Erie 049-24448	Erie 049-24462	Erie 049-24464	Erie 049-24467	Erie 049-24484	Erie 049-24485	Erie 049-24488	Erie 049-24489
NAME OF WELL	Joseph & Clara Risjan #A1	Raymond Romba #1	Rutkowski #4	Waterford Agway #1	Paul Martin #1	Erie Municipal Airport Authority #2	Mason-Williams #1	Volkman #1	Klopfenstein #1	Kibbe Unit #2
OPERATOR	NRM Petroleum Corporation	N.E.A. Cross Company	Vineyard Oil & Gas Company	N.E.A. Cross Company	N.E.A. Cross Company	Vineyard Oil & Gas Company	Vineyard Oil & Gas Company	Vineyard Oil & Gas Company	Vineyard Oil & Gas Company	Kaltsas Oil Company, Inc.
TOWNSHIP	Waterford	Waterford	Waterford	Waterford	Millcreek	Millcreek	Conneaut	Venango	Venango	LeBoeuf
QUADRANGLE	Waterford	Cambridge Spgs, NE	Cambridge Spgs, NE	Waterford	Erie South	Swanville	Conneaut	Wattsburg	Wattsburg	Cambridge Springs
LATITUDE	2,150 ft. S 41°57'30"	14,900 ft. S 42°00'00"	11,800 ft. S 41°57'30"	3,900 ft. S 41°57'30"	10,100 ft. S 42°07'30"	12,900 ft. S 42°07'30"	6,600 ft. S 41°55'00"	10,600 ft. S 42°05'00"	5,800 ft. S 42°02'30"	8,100 ft. S 41°52'30"
LONGITUDE	1,750 ft. W 79°57'30"	4,750 ft. W 80°02'30"	2,100 ft. W 80°02'30"	1,950 ft. W 79°57'30"	5,700 ft. W 80°00'00"	10,950 ft. W 80°07'30"	3,950 ft. W 80°30'00"	400 ft. W 79°50'00"	6,000 ft. W 79°50'00"	9,200 ft. W 80°00'00"
DATE COMPLETED	2-21-85	4-10-85	2-21-85	3-19-85	3-31-85	4-5-85	4-19-85	5-8-85	4-30-85	4-26-85
ELEVATION	1195 GR	1390 GR	1580 GR	1190 GR	1060 GR	725 GR	890 GR	1320 GR	1530 GR	1330 GR
LOGS RECEIVED AND LOGGED INTERVALS		DBC/GR: 1999-3998			DBC/GR: 1250-3278					
TULLY LIMESTONE	2073-	2310-	2650-	2088-	1688-	1284-	1652-	2164-	2391-	2538-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2296- Bois Blanc 2489-	2530-	2782-	2307-	1912-	1490-	1805-	2393-	2618-	2751-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	2560-		3138-				2115-	2588-	2810-	
SILURIAN-DEVONIAN CARBONATES	2586-	2784-			2178-	1740-	2130-	2638-	2904-	
SALINA GROUP LOCKPORT DOLOMITE	2668- 3194-	2868- 3378-	3174- 3594-	2668- 3125-	2264- 2660-	1862- 2150-	2244- 2694-	2708- 3163-	2977- 3432-	3336- 3580-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3450- 3510-	3614- 3672-	3904- 3984-	3449-	2925- 2980-	2504- 2563-	2952- 3017-	3398- 3478-	3678- 3747-	3908- 3969-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3542- 3670- 3705-	3705- 3821- 3868-	4016- 4103- 4176-	3550- 3669- 3707-	3010- 3130- 3166-	2590- 2714- 2740-	3056- 3142- 3206-	3498- 3648- 3664-	3779- 3880- 3928-	3993- 4137- 4170-
QUEENSTON FORMATION	3716-	3874-	4186-		3176-	2754-	3217-	3664-	3943-	4181-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	3598-3648	3777-3817	4046-4181		3050-3065	2612-2750	3066-3114	3544-3602	3821-3939	4051-4179
TOTAL DEPTH	3845	4002	4265	3711	3300	2855	3320	3755	4035	4249
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Whirlpool	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	84 Mcf Nat. 7,774 Mcf AF 900 psi/72 hrs. development Waterford pool LeBoeuf field	3,000 Mcf AF 1,100 psi/48 hrs. development Reeds Corners field	2,000 Mcf AF 1,100 psi/96 hrs. development Edinboro North field	2,500 Mcf Nat. 850 psi/48 hrs. development Waterford pool LeBoeuf field	2,900 Mcf AF 1,150 psi/48 hrs. development Glenwood pool Erie field	500 Mcf AF 900 psi/96 hrs. development Charter Oaks pool Erie field	600 Mcf AF 800 psi/168 hrs. development Bushnell-Lexington pool Conneaut field	1,500 Mcf AF 890 psi/240 hrs. development Half Moon pool North East field	750 Mcf AF 900 psi/48 hrs. development Wattsburg pool North East field	350 Mcf AF 1,150 psi/72 hrs. development Edinboro North field

Figure 33. *(Continued).*

COUNTY Permit Number	Erie 049-24499	Erie 049-24509	Erie 049-24534	Erie 049-24535	Erie 049-24536	Erie 049-24543	Erie 049-24546	Erie 049-24547	Erie 049-24554	Forest 053-26222
NAME OF WELL	L. Thompson #1	R. Smith #1	Daniel Cook #1	J. Swenson #1	G. Swenson #1	Donation Road Pool #1	Zeaman #1	Fenestra #1	Zem Zem #1	Watson-Trunkeyville #1
OPERATOR	Doran & Associates, Inc. #K-P-68	Doran & Associates, Inc. #K-P-67	Troyer Gas & Oil Company	Troyer Gas & Oil Company	Troyer Gas & Oil Company	Troyer Gas & Oil Company	Vineyard Oil & Gas Company	Vineyard Oil & Gas Company	Old Mountain Gas Company, Inc.	Quaker State Oil Refining Corp.
TOWNSHIP	Venango	Amity	Waterford	Waterford	Waterford	Waterford	Venango	Millcreek	Millcreek	Harmony
QUADRANGLE	Hammett	Union City	Waterford	Waterford	Waterford	Waterford	Wattsburg	Swanville	Swanville	West Hickory
LATITUDE	610 ft. S 42°02'30"	1,400 ft. S 42°00'00"	3,350 ft. S 42°00'00"	3,900 ft. S 42°00'00"	3,600 ft. S 42°00'00"	3,700 ft. S 42°00'00"	3,860 ft. S 42°05'00"	200 ft. S 42°05'00"	3,100 ft. S 42°05'00"	1,800 ft. S 41°37'30"
LONGITUDE	5,430 ft. W 79°52'30"	4,000 ft. W 79°50'00"	2,600 ft. W 79°57'30"	6,800 ft. W 79°55'00"	5,600 ft. W 79°55'00"	1,250 ft. W 79°57'30"	8,300 ft. W 79°45'00"	300 ft. W 80°10'00"	1,150 ft. W 80°10'00"	11,000 ft. W 79°22'30"
DATE COMPLETED	7-8-85	7-4-85	7-1-85	6-19-85	6-15-85	6-23-85	6-20-85	6-25-85	7-22-85	2-27-85
ELEVATION	1410 GR	1500 GR	1310 GR	1440 GR	1500 GR	1295 GR	1668 GR	730 GR	768 GR	1585 GR
LOGS RECEIVED AND LOGGED INTERVALS										
TULLY LIMESTONE	2201-	2427-	2108-	2276-	2324-	2106-	2554-	1306-	1352-	4100-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	2430-	2655-	2331-	2500-	2550-	2328-	2786-	1511-	1546-	
ORISKANY SANDSTONE RIDGELEY SANDSTONE	2629-	2845-	2590-	2752-	2808-	2588-	2957-	1706-	1803-	4470-
SILURIAN-DEVONIAN CARBONATES	2680-	2892-	2604-	2768-	2822-	2604-	2968-	1778-		4496-
SALINA GROUP LOCKPORT DOLOMITE	2760-	2977-					3068- 3486-	1880- 2283-		4670- 5372-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	3486- 3551-	3764- 3816-	3528-	3690-	3738-	3520-	3738- 3804-	2526- 2588-		5610- 5784-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	3585- 3739-	3848- 4003-	3539- 3665- 3716-	3702- 3832- 3882-	3752- 3880- 3930-	3532- 3652- 3711-	3861- 3951- 3985-	2603- 2729- 2770-		5806- 5950- 5974-
QUEENSTON FORMATION	3751-	4016-	3726-	3892-	3942-	3720-	3998-	2781-		5984-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Oriskany	Medina
PRODUCING INTERVAL	3626-3745	3877-3950	3597-3641	3756-3812	3809-3861	3586-3645	3877-3995	2650-2777		5871-5957
TOTAL DEPTH	3887	4166	3868	4017	4055	3840	4085	2880	1818	6071
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Oriskany	Queenston
RESULTS	1,515 Mcf AF 1,025 psi/72 hrs. development Oennee pool Phillipsville field	167 Mcf AF 989 psi/72 hrs. development Wattsburg pool North East field	1,250 Mcf AF 1,100 psi/192 hrs. development Talcott pool Erie field	1,000 Mcf AF 1,075 psi/48 hrs. development Talcott pool Erie field	1,000 Mcf AF 1,075 psi/48 hrs. development Talcott pool Erie field	2,500 Mcf AF 1,100 psi/48 hrs. development Talcott pool Erie field	750 Mcf AF 1,150 psi/240 hrs. development Bailey Brook pool North East field	900 Mcf AF 890 psi/240 hrs. development Charter Oaks pool Erie field	316 Mcf AF 790 psi/48 hrs. development Car Wash pool Erie field	100 Mcf AF 1,300 psi/48 hrs. development Trunkeyville pool Fagundus field

COUNTY Permit Number	Indiana 063-28344	Indiana 063-28382	Lycoming 081-20028-P	Mercer 085-20325	Mercer 085-20334	Mercer 085-20420	Mercer 085-20523	Mercer 085-20532	Mercer 085-20585	Mercer 085-20592
NAME OF WELL	Douglass Heirs #1	Irvan J. Hudson #1	PA State Forest Tract 552 #1	Linn #1	R. E. Morrison #1	Holbrook-Soros #1	E. Ferguson #1	Alexander #1	St. Paul's Home #3	J. Carroll #2
OPERATOR	Felmont Oil Corp. #F-381	CNG Development Company #1125	Pennzoil Company	Atlas Resources, Inc.	Atlas Resources, Inc.	Atlas Resources, Inc.	R. O. Werner Company	Mark Resources Corporation	Atlas Resources, Inc.	Atlas Resources, Inc.
TOWNSHIP	Green	Green	Brown	West Salem	S. Pymatuning	West Salem	Sugar Grove	Hermitage	West Salem	Pymatuning
QUADRANGLE	Barnesboro	Barnesboro	Slate Run	Sharpsville	Sharpsville	Greenville West	Greenville East	Sharpsville	Greenville West	Sharpsville
LATITUDE	9,300 ft. S 40°42'30"	3,700 ft. S 40°42'30"	0 ft. S 41°30'00"	3,700 ft. S 41°22'30"	10,700 ft. S 41°22'30"	7,100 ft. S 41°25'00"	8,600 ft. S 41°30'00"	11,560 ft. S 41°17'30"	11,900 ft. S 41°27'30"	6,700 ft. S 41°22'30"
LONGITUDE	4,640 ft. W 78°50'00"	1,050 ft. W 78°50'00"	1,490 ft. W 77°35'00"	5,100 ft. W 80°25'00"	2,600 ft. W 80°27'30"	1,750 ft. W 80°27'30"	2,700 ft. W 80°20'00"	1,750 ft. W 80°27'30"	3,900 ft. W 80°22'30"	5,750 ft. W 80°25'00"
DATE COMPLETED	12-6-84	12-6-84	1-9-85	10-24-81	10-28-81	8-6-82	5-18-83	8-29-83	6-8-84	6-20-84
ELEVATION	1852 GR	1753 GR	1950 GR	1050 GR	1260 GR	1172 GR	1048 GR	1024 GR	1095 GR	1070 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/OBC/CNL: 0-8455 GR/T/S: 1650-8459 GR/IL: 1750-8454 STRATA: 2000-8429		OBC/SON: 9292-12840 CYBER: 2018-9257 GR/OLL: 2018-9282 LTO/GR: 2018-9264			GR/DIL: 16-4961		OBC/CNL: 1140-5242	GR/OIL: 4750-4904	GR/OIL: 512-5084
TULLY LIMESTONE		7454-	6768-6864			2948-		3088-		3020-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	8250- 8258-	8184- 8194-	7664-	3117-	3330-	3110-	3022-	3240-	3098-	3178-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	8350-	8283-	7688-	3316-		3330-	3220-		3295-	3376-
SILURIAN-DEVONIAN CARBONATES	8386-	8302-?	Shriver 7706- Keyser 7830-	3335-	3541-	3348-	3230-	3484-	3306-	3394-
SALINA GROUP LOCKPORT DOLOMITE			7986- Wills Creek 8846-	3468- 4276-	3676- 4488-	3466- 4274-	-4071 4071-4368	3598- 4492-	3416- 4203-	3530- 4312-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE			Bloomsburg 9286- McKenzie 9588-	4558- 4612-	4786- 4841-	4561- 4615-	4368- 4421-	4792- 4850-	4480- 4530-	4620- 4676-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE			Rochester 9696- Rose Hill 9832- Castanea Mbr 10270- Tuscarora 10300-	4676- 4790- 4866-	-5013 5013- 5094-	4674- 4780- 4858-	4476- 4593- 4664-	4924- 5034- 5116-	4589- 4699- 4775-	4740- 4850- 4932-
QUEENSTON FORMATION			Juniata 10532- Bald Eagle 11554-	4878-	5107-	4872-	4681-	5134-	4790-	4942-
PRODUCING FORMATION	Huntersville and Ridgeley	Huntersville and Ridgeley	Reedsville 12702-	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	8262-8355	8262-8355		4713-4787	4962-5008	4711-4778	4524-4578	4962-5119	4779-4787	4774-4897
TOTAL DEPTH	8456	8456	12885	4979	5233	4963	4748	5221	4906	5086
DEEPEST FORMATION REACHED	Helderberg	Helderberg	Reedsville	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	724 Mcf AF 3,900 psi/72 hrs. development Lizowitz pool Strongstown field	1,300 Mcf AF 4,110 psi/48 hrs. development Uniontown pool Living Waters field	Plugged and abandoned New field wildcat	2,130 Mcf AF 1,300 psi/48 hrs. development Good Hope pool New Hamburg field	250 Mcf AF 1,220 psi/48 hrs. development West Salem pool Maysville field	98 Mcf AF 990 psi/48 hrs. development Maysville field	1,000 Mcf AF 1,450 psi/72 hrs. development Osborn pool Sheakleyville field	735 Mcf AF 1,505 psi/168 hrs. development Sharon Deep pool Sharon field	1,250 Mcf AF 1,320 psi/48 hrs. development Thiel pool Greenville field	1,590 Mcf AF 1,350 psi/48 hrs. development Good Hope pool New Hamburg field

Figure 33. *(Continued).*

COUNTY Permit Number	Mercer 085-20604	Mercer 085-20608	Mercer 085-20610	Mercer 085-20612	Mercer 085-20613	Mercer 085-20614	Mercer 085-20616	Mercer 085-20617	Mercer 085-20619	Mercer 085-20620
NAME OF WELL	A. Nych #1	George Hunter #1	Riley-Freese Unit #1	E. Horvath #2	O. Horne #1	Riley-Freese #2	George #1	George #2	Van Meter-Smith #1	Hoagland-Hofius #1
OPERATOR	Haddad and Brooks, Inc., HB-235-6	Empire Exploration, Inc. #6356	R. O. Werner Company, Inc.	Haddad and Brooks, Inc. #HB-209-203	R. O. Werner Company, Inc.	R. O. Werner Company, Inc.	Pominex, Incorporated	Pominex, Incorporated	Haddad and Brooks, Inc., #HB-221-48-7	Haddad and Brooks, Inc., #HB-235-14-20
TOWNSHIP	Lackawannock	Worth	Sugar Grove	Lackawannock	Sugar Grove	Sugar Grove	Salem	Salem	Deer Creek	Lackawannock
QUADRANGLE	Sharon East	Sandy Lake	Greenville East	Greenfield	Greenville East	Greenville East	Greenville East	Greenville East	New Lebanon	Greenfield
LATITUDE	7,240 ft. S 41°12'30"	5,225 ft. S 41°17'30"	3,090 ft. S 41°27'30"	13,400 ft. S 41°15'00"	5,910 ft. S 41°30'00"	1,570 ft. S. 41°27'30"	11,100 ft. S 41°30'00"	6,400 ft. S 41°30'00"	4,560 ft. S 41°27'30"	14,870 ft. S 41°15'00"
LONGITUDE	1,970 ft. W 80°22'30"	9,000 ft. W 80°00'00"	3,420 ft. W 80°20'00"	7,210 ft. W 80°20'00"	4,700 ft. W 80°20'00"	3,100 ft. W 80°20'00"	5,400 ft. W 80°17'30"	8,500 ft. W 80°15'00"	10,700 ft. W 80°05'00"	8,240 ft. W 80°20'00"
DATE COMPLETED	5-5-84	12-11-84	6-14-84	7-7-84	5-31-84	6-24-84	7-7-84	7-18-84	10-5-84	8-2-84
ELEVATION	1125 GR	1500 GR	1001 GR	1287 GR	1006 GR	1001 GR	1280 GR	1380 GR	1389 GR	1252 GR
LOGS RECEIVED AND LOGGED INTERVALS	OBC/GR: 0-5650 GR/GO: 760-5643		CBL/GR: 3800-4758	OBC/GR: 0-5753 GR/GO: 790-5746	OBC/GR: 0-4655 GR/GO: 470-4648				CBL/GR: 4500-5424	CBL/GR: 4750-5742
TULLY LIMESTONE	3578-	3940-		3698-	2788-		3184-	3266-		
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3704-	4139-		3828-	2939-	3042-	3332-	3422-		
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3882-			3994-	3135-	3243-	3524-	3610-		
SILURIAN-DEVONIAN CARBONATES	3924-	4272-		4018-	3198-	3253-	3542-	3630-		
SALINA GROUP LOCKPORT DOLOMITE	4031- 4945-	4430- 5270-	4146-	4183- 5053-	3244- 4024-	-4131 4131-4438	3688- 4308-	3776- 4394-	4810-	5045-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	5245- 5310-	5520-	4410- 4464-	5357- 5418-	4295- 4348-	4438- 4490-	4674- 4764-	4722- 4852-	5098- 5154-	5416- 5455-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5393- 5516- 5586-		4522- 4625- 4710-	5498- 5618- 5692-	4400- 4517- 4590-	4548- 4668- 4732-	4792- 4976-	4880- 5064-	5229- 5367- 5402-	5492- 5618- 5684-
QUEENSTON FORMATION	5598-		4724-	5706-	4600-	4750-	4992-	5074-	5412-	5700-
PRODUCING FORMATION	Medina	Lockport	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5450-5508	5436-5519	4581-4626	5562-5615	4456-4503	4597-4642	4841-4879	4920-4971	5274-5310	5564-5601
TOTAL DEPTH	5655	5609	4770	5791	4659	4774	5074	5150	5475	5753
DEEPEST FORMATION REACHED	Queenston	Rochester	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	80 Mcf AF 1,500 psi/72 hrs. extension Greenfield field	185 Mcf AF 1,780 psi/168 hrs. development Kilgore pool Wolf Creek field	962 Mcf AF 1,475 psi/72 hrs. development Osborn pool Sheakleyville field	1,400 Mcf AF 1,575 psi/72 hrs. development Greenfield field	1,178 Mcf AF 1,370 psi/72 hrs. development Osborn pool Sheakleyville field	1,178 Mcf AF 1,525 psi/72 hrs. development Osborn pool Sheakleyville field	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field	1,500 Mcf AF 1,425 psi/72 hrs. development Kantz Corners field	786 Mcf AF 1,550 psi/72 hrs. development Greenfield field

COUNTY Permit Number	Mercer 085-20622	Mercer 085-20624	Mercer 085-20626	Mercer 085-20627	Mercer 085-20628	Mercer 085-20629	Mercer 085-20630	Mercer 085-20631	Mercer 085-20633	Mercer 085-20634
NAME OF WELL	J. Miller #1	Buchanan-Dris #1	G. Plymire #1	Pederson-Stallsmith #1	A.L.M. Unit #1	J. Pirka #1	J. Anderson #1	Brocklehurst #1	Oonnell Unit #1	Katilavas #1
OPERATOR	Haddad and Brooks, Inc., #HB-221-S-68	Haddad and Brooks, Inc.	Haddad and Brooks, Inc., #HB-236-22	Haddad and Brooks, Inc., #HB-221-S-60	Haddad and Brooks, Inc., #HB-221-S-50	Haddad and Brooks, Inc., #HB-235-18	Pominex, Incorporated	Pominex, Incorporated	Pominex, Incorporated	Pominex, Incorporated
TOWNSHIP	Millcreek	Lackawannock	Lackawannock	Deer Creek	New Vernon	Lackawannock	Salem	Salem	Salem	Salem
QUADRANGLE	New Lebanon	Greenfield	Greenfield	New Lebanon	New Lebanon	Sharon East	Greenville East	Greenville East	Greenville East	Greenville East
LATITUDE	12,270 ft. S 41°27'30"	1,700 ft. S 41°12'30"	3,950 ft. S 41°12'30"	1,200 ft. S 41°27'30"	10,750 ft. S 41°27'30"	15,010 ft. S 41°15'00"	3,400 ft. S 41°27'30"	1,100 ft. S 41°27'30"	1,050 ft. S 41°27'30"	11,000 ft. S 41°30'00"
LONGITUDE	2,350 ft. W 80°05'00"	7,120 ft. W 80°20'00"	10,100 ft. W 80°20'00"	10,900 ft. W 80°05'00"	7,350 ft. W 80°05'00"	540 ft. W 80°22'30"	4,000 ft. W 80°17'30"	8,400 ft. W 80°17'30"	6,000 ft. W 80°17'30"	7,550 ft. W 80°17'30"
DATE COMPLETED	9-14-84	8-2-84	11-2-84	9-25-84	8-23-84	11-14-84	9-9-84	8-29-84	10-14-84	11-9-84
ELEVATION	1362 GR	1273 GR	1248 GR	1408 GR	1382 GR	1232 GR	1311 GR	1190 GR	1266 GR	1293 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/CBL: 4600-5487	OBC/GR: 0-5790 GR/GO: 845-5785	GR/OBC: 0-5781 GR/GO: 740-5776	CBL/GR: 4500-5442	GR/OBC: 0-5525 GR/GO: 640-5519	FOC/GR: 0-5699 GR/GO: 750-5691 STRATA: 5540-5680				
TULLY LIMESTONE		3732-	3702-		3610-	3636-	3260-	3065-	3166-	3168-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT		3860-	3830-		3792-	3712-	3414-	3248-	3320-	3320-
ORISKANY SANDSTONE RIDGELEY SANDSTONE		4029-	4004-		3950-	3934-	3610-	3444-	3514-	3516-
SILURIAN-DEVONIAN CARBONATES		4052-	4028-		3980-	3962-	3626-	3456-	3528-	3530-
SALINA GROUP LOCKPORT DOLOMITE	4855-	4220- 5086-	4194- 5070-	4771-	4088- 4832-	4125- 5002-	3782- 4412-	3616- 4262-	3696- 4312-	3680- 4318-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	5209- 5282-	5390- 5454-	5374- 5438-	5090- 5156-	5156- 5212-	5316- 5405-	4782- 4870-	4626- 4712-	4686- 4770-	4668- 4759-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5310- 5470-	5533- 5687- 5728-	5521- 5642- 5718-	5213- 5368- 5404-	5270- 5390- 5460-	5442- 5552- 5635-	4898- 5084-	4740- 4928-	4804- 4982-	4780- 4963-
QUEENSTON FORMATION		5730-	5724-	5417-	5468-	5646-	5096-	4941-	4996-	4975-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5378-5423	5589-5631	5574-5623	5291-5329	5359-5397	5518-5542	4953-5001	4817-4900	4855-4901	4833-4880
TOTAL DEPTH	5551	5791	5784	5470	5535	5703	5147	4970	5050	5025
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,178 Mcf AF 1,425 psi/72 hrs. development Kantz Corners field	962 Mcf AF 1,500 psi/72 hrs. development Greenfield field	250 Mcf AF 1,200 psi/72 hrs. development Greenfield field	1,700 Mcf AF 1,450 psi/72 hrs. development Kantz Corners field	1,039 Mcf AF 1,420 psi/72 hrs. development Kantz Corners field	500 Mcf AF 1,550 psi/72 hrs. development Greenfield field	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field

Figure 33. *(Continued).*

COUNTY Permit Number	Mercer 085-20636	Mercer 085-20637	Mercer 085-20639	Mercer 085-20640	Mercer 085-20641	Mercer 085-20643	Mercer 085-20644	Mercer 085-20645	Mercer 085-20647	Mercer 085-20648
NAME OF WELL	George #4	George #5	E. Horvath #3	R. Tomko #1	R. Horodnic #1	James McLaughlin #1	James Dunkerly #1	R. Buchanan #1	Oick #1	George #7
OPERATOR	Pominex, Incorporated	Pominex, Incorporated	Haddad and Brooks, Inc. #HB-235-9	Haddad and Brooks, Inc., #HB-236-2	Haddad and Brooks, Inc., #HB-236-35A	Empire Exploration, Inc. #6355	Cabot Oil & Gas Corporation	Haddad and Brooks, Inc., #HB-235-10	Pominex, Incorporated	Pominex, Incorporated
TOWNSHIP	Salem	Salem	Lackawannock	Lackawannock	Lackawannock	Worth	French Creek	Lackawannock	Salem	Salem
QUADRANGLE	Greenville East	Greenville East	Greenfield	Greenfield	Greenfield	Sandy Lake	New Lebanon	Greenfield	Greenville East	Greenville East
LATITUDE	10,800 ft. S 41°30'00"	6,325 ft. S 41°30'00"	11,850 ft. S 41°15'00"	10,950 ft. S 41°15'00"	75 ft. S 41°12'30"	11,600 ft. S 41°17'30"	5,340 ft. S 41°30'00"	850 ft. S 41°12'30"	10,300 ft. S 41°30'00"	8,300 ft. S 41°30'00"
LONGITUDE	3,650 ft. W 80°17'30"	10,450 ft. W 80°15'00"	8,510 ft. W 80°20'00"	6,490 ft. W 80°20'00"	6,350 ft. W 80°20'00"	6,150 ft. W 80°00'00"	2,310 ft. W 80°00'00"	9,600 ft. W 80°20'00"	10,325 ft. W 80°15'00"	8,300 ft. W 80°15'00"
DATE COMPLETED	9-28-84	9-18-84	10-28-84	11-27-84	11-19-84	12-6-84	11-9-84	10-18-84	10-24-84	10-28-84
ELEVATION	1330 GR	1382 GR	1252 GR	1261 GR	1319 GR	1424 GR	1271 GR	1270 GR	1349 GR	1348 GR
LOGS RECEIVED AND LOGGED INTERVALS				GR/DBC: 0-5721 GR/GO: 730-5716	GR/GO: 800-5807		GR/DBC: 536-5368	FDC/GR: 0-5766		
TULLY LIMESTONE	3214-	3244-		3672-	3752-	3934-	3468-	3692-	3240-	3220-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3370-	3400-		3802-	3882-	4140-	3682-	3820-	3394-	3372-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3560-	3590-		3968-	4047-		3828-	3990-	3584-	3562-
SILURIAN-DEVONIAN CARBONATES	3572-	3608-		3993-	4070-	4270-	3846-	4012-	3598-	3578-
SALINA GROUP LOCKPORT DOLOMITE	3738- 4350-	3754- 4394-	4977-	4152- 5008-	4236- 5106-	4440- 5226-	3956- 4718-	4178- 5074-	3750- 4388-	3728- 4356-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4684- 4804-	4754- 4844-	5288- 5418-	5326- 5386-	5408- 5464-	5472-	5013- 5064-	5356- 5412-	4752- 4840-	4732- 4814-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	4830- 5014-	4870- 5056-	5456- 5596- 5650-	5464- 5586- 5610-	5551- 5674- 5744-		5125- 5273- 5306-	5500- 5624- 5694-	4868- 5052-	4842- 5033-
QUEENSTON FORMATION	5030-	5070-	5562-	5626-	5759-		5315-	5707-	5066-	
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Lockport	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4879-4935	4921-4973	5505-5542	5520-5568	5612-5663	5403-5447	5126-5218	5570-5605	4925-4983	4881-4845
TOTAL DEPTH	5086	5117	5705	5727	5822	5610	5372	5769	5109	5040
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Rochester	Queenston	Queenston	Queenston	Queenston
RESULTS	15 Mcf AF 1,300 psi/72 hrs. development Dsborn pool Sheakleyville field	15 Mcf AF 1,300 psi/72 hrs. development Dsborn pool Sheakleyville field	400 Mcf AF 1,650 psi/72 hrs. development Greenfield field	650 Mcf AF 1,525 psi/72 hrs. development Greenfield field	600 Mcf AF 1,400 psi/72 hrs. development Greenfield field	9 Mcf AF 1,300 psi/168 hrs. development Kilgore pool Wolf Creek field	500 Mcf AF 1,360 psi/48 hrs. development Cochranton field	600 Mcf AF 1,665 psi/72 hrs. development Greenfield field	15 Mcf AF 1,300 psi/72 hrs. development Dsborn pool Sheakleyville field	15 Mcf AF 1,300 psi/72 hrs. development Dsborn pool Sheakleyville field

COUNTY Permit Number	Mercer 085-20649	Mercer 085-20650	Mercer 085-20651	Mercer 085-20652	Mercer 085-20653
NAME OF WELL	Germano #1	Germano #2	J. Anderson #2	Dodds #1	Werger #1
OPERATOR	Pominex, Incorporated	Pominex, Incorporated	Pominex, Incorporated	Pominex, Incorporated	Pominex, Incorporated
TOWNSHIP	Salem	Salem	Salem	Salem	Salem
QUADRANGLE	Greenville East	Greenville East	Greenville East	Greenville East	Greenville East
LATITUDE	14,600 ft. S 41°30'00"	900 ft. S 41°27'30"	3,000 ft. S 41°27'30"	100 ft. S 41°27'30"	14,850 ft. S 41°30'00"
LONGITUDE	1,050 ft. W 80°17'30"	2,400 ft. W 80°17'30"	2,300 ft. W 80°17'30"	3,950 ft. W 80°17'30"	7,300 ft. W 80°17'30"
DATE COMPLETED	10-29-84	11-6-84	11-23-84	11-13-84	11-4-84
ELEVATION	1332 GR	1300 GR	1278 GR	1275 GR	1210 GR
LOGS RECEIVED AND LOGGED INTERVALS					
TULLY LIMESTONE	3254-	3232-	3233-	3202-	3112-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3408-	3386-	3386-	3356-	3266-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3596-	3576-	3570-	3548-	3464-
SILURIAN-DEVONIAN CARBONATES	3612-	3590-	3592-	3562-	3478-
SALINA GROUP LOCKPORT DOLOMITE	3766- 4400-	3744- 4396-	3747- 4374-	3716- 4354-	3632- 4270-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4778- 4862-	4750- 4836-	4746- 4834-	4700- 4814-	4634- 4720-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	4890- 5072-	4864- 5048-	4862- 5046-	4840- 5024-	4748- 4934-
QUEENSTON FORMATION	5088-	5062-	5060-	5038-	4950-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4983-5021	4909-4972	4901-4955	4982-4926	4813-4857
TOTAL DEPTH	5141	5115	5102	5065	4980
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field

COUNTY Permit Number	Mercer 085-20654	Mercer 085-20655	Mercer 085-20656	Mercer 085-20660	Mercer 085-20661
NAME OF WELL	Katilavas #2	E. Horvath #4	Dodge #1	J. Oancu #1	George #8
OPERATOR	Pominex, Incorporated	Haddad and Brooks, Inc.,	Pominex, Incorporated	Haddad and Brooks, Inc., #HB-236-39	Pominex, Incorporated
TOWNSHIP	Salem	Lackawannock	Salem	Lackawannock	Salem
QUADRANGLE	Greenville East	Greenfield	Greenville East	Greenfield	Greenville East
LATITUDE	12,300 ft. S 41°30'00"	9,850 ft. S 41°15'00"	7,450 ft. S 41°27'30"	8,400 ft. S 41°15'00"	9,700 ft. S 41°30'00"
LONGITUDE	6,700 ft. W 80°17'30"	7,750 ft. W 80°20'00"	5,450 ft. W 80°17'30"	9,150 ft. W 80°20'00"	5,600 ft. W 80°17'30"
DATE COMPLETED	12-7-84	11-29-84	11-24-84	12-22-84	12-20-84
ELEVATION	1257 GR	1258 GR	1150 GR	1233 GR	1315 GR
LOGS RECEIVED AND LOGGED INTERVALS		FOC/GR: 0-5694 GR/GD: 721-5690		OBC/GR: 0-5670	
TULLY LIMESTONE	3165-	3637-	3104-	3563-	3190-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3318-	3768-	3258-	3728-	3342-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3514-	3932-	3450-	3894-	3536-
SILURIAN-DEVONIAN CARBONATES	3526-	3956-	3466-	3919-	3548-
SALINA GROUP LOCKPORT DOLOMITE	3678- 4300-	4120- 4986-	3624- 4276-	4082- 4954-	3702- 4316-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4674- 4760-	5288- 5346-	4640- 4724-	5258- 5318-	4690- 4774-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	4786- 4970-	5426- 5550- 5624-	4754- 4938-	5394- 5552- 5594-	4802- 4984-
QUEENSTON FORMATION	4986-	5636-	4952-	5605-	4997-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4824-4872	5480-5532	4813-4864	5446-5508	4849-4891
TOTAL DEPTH	4996	5701	4975	5658	5060
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field	600 Mcf AF 1,550 psi/72 hrs. development Greenfield field	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field	900 Mcf AF 1,500 psi/72 hrs. development Greenfield field	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field

Figure 33. *(Continued).*

COUNTY Permit Number	Mercer 085-20668	Mercer 085-20669	Mercer 085-20670	Mercer 085-20674	Mercer 085-20675	Mercer 085-20676	Mercer 085-20679	Mercer 085-20680	Mercer 085-20681	Mercer 085-20682
NAME OF WELL	Martin #1	Martin #2	Horvath-Johnson #1	Leali Brothers #1	Kaikis #1	Young Erb #1	Kerins #2	Dodds #2	Woge-Wilson #1	Wolf Chiodo #1
OPERATOR	Pominex, Incorporated	Pominex, Incorporated	Haddad and Brooks, Inc., #HB-236	Atlas Resources, Inc.	Atlas Resources, Inc.	Atlas Resources, Inc.	Atlas Resources, Inc.	Pominex, Incorporated	Atlas Resources, Inc.	Atlas Resources, Inc.
TOWNSHIP	Salem	Salem	Lackawannock	Hickory	Shenango	Shenango	Hermitage	Salem	Hermitage	Hermitage
QUADRANGLE	Greenville East	Greenville East	Greenfield	Sharon East	Sharon East	Sharon East	Sharon East	Greenville East	Sharon East	Sharon East
LATITUDE	7,850 ft. S 41°27'30"	6,450 ft. S 41°27'30"	8,700 ft. S 41°15'00"	6,600 ft. S 41°12'30"	10,550 ft. S 41°12'30"	13,450 ft. S 41°12'30"	6,050 ft. S 41°12'30"	13,750 ft. S 41°30'00"	10,050 ft. S 41°15'00"	700 ft. S 41°15'00"
LONGITUDE	2,950 ft. W 80°17'30"	3,950 ft. W 80°17'30"	10,900 ft. W 80°22'00"	5,200 ft. W 80°27'30"	9,000 ft. W 80°27'30"	6,700 ft. W 80°27'30"	9,700 ft. W 80°25'00"	2,450 ft. W 80°17'30"	1,700 ft. W 80°27'30"	1,600 ft. W 80°27'30"
DATE COMPLETED	12-2-84	12-10-84	12-7-84	12-23-84	12-14-84	2-27-85	3-19-85	1-6-85	2-18-85	12-27-84
ELEVATION	1255 GR	1285 GR	1203 GR	832 GR	1011 GR	1070 GR	980 GR	1307 GR	1038 GR	1054 GR
LOGS RECEIVED AND LOGGED INTERVALS			FDC/GR: 10-5614							
TULLY LIMESTONE	3236-	3262-	3556-					3214-		
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3392-	3418-	3690-	3246-	3426-	3522-	3439-	3368-	3386-	3448-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3580-	3610-	3859-	3434-	3620-	3714-	3620-	3560-	3566-	3630-
SILURIAN-DEVONIAN CARBONATES	3600-	3626-	3886-	3446-	3632-	3730-	3632-	3575-	3590-	3648-
SALINA GROUP LOCKPORT DOLOMITE	3758- 4372-	3782- 4422-	4048- 4926-	3628- 4480-	3810- 4672-	3909- 4777-	3815- 4676-	3728- 4356-	3756- 4616-	3826- 4668-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4766- 4842-	4794- 4882-	5216- 5279-	4794- 4854-	4978- 5038-	5090- 5154-	4972- 5036-	4730- 4816-	4912- 4970-	4992- 5046-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	4872- 5056-	4910- 5098-	5356- 5479- 5550-	4938- 5056- 5126-	5118- 5236- 5314-	5238- 5352-	-5236 5236- 5311-	4842- 5028-	5050- 5165-	5122- 5240- 5320-
QUEENSTON FORMATION	5069-	5110-	5568-	5139-	5327-		5322-	5042-		5328-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4929-4972	4966-5018	5434-5563	4972-5083	5155-5285	5271-5347	5170-5233	4922-4977	5098-5163	5163-5239
TOTAL DEPTH	5159	5160	5622	5201	5384	5444	5475	5142	5264	5389
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field	500 Mcf AF 1,525 psi/72 hrs. development Greenfield field	1,520 Mcf AF 1,425 psi/48 hrs. development Wheatland field	1,700 Mcf AF 1,425 psi/48 hrs. development Wheatland field	1,790 Mcf AF 1,490 psi/48 hrs. development Wheatland field	1,830 Mcf AF 1,500 psi/48 hrs. development Wheatland field	15 Mcf AF 1,300 psi/72 hrs. development Osborn pool Sheakleyville field	1,650 Mcf AF 1,400 psi/48 hrs. development Sharon Deep pool Sharon field	4,900 Mcf AF 1,425 psi/48 hrs. development Sharon Deep pool Sharon field

COUNTY Permit Number	Mercer 085-20684	Mercer 085-20687	Mercer 085-20688	Mifflin 087-20002-P	Potter 105-20741-P	Somerset 111-20128-P	Somerset 111-20130	Somerset 111-20142	Somerset 111-20143	Tioga 117-20136
NAME OF WELL	Eagles #1	Leali Brothers #2	Radkowski #1	PA State Forest Tract 377 #1	State of PA Tract 367 #1	Anna Hochard #1	Harold Critchfield #1	David Sanner #1	Robert D. Shumaker #2	Lottie Allen #1
OPERATOR	Empire Exploration, Inc. #6354	Atlas Resources, Inc.	Atlas Resources, Inc.	Exxon Corporation	American President Energy Co., Inc.	Ashtola Production Company	Ashtola Production Company	Ashtola Production Company	Ashtola Production Company	Ladd Petroleum Corporation
TOWNSHIP	Worth	Hermitage	Hermitage	Bratton	Abbott	Lincoln	Lincoln/Somerset	Upper Turkeyfoot	Brothers Valley	Union
QUADRANGLE	Sandy Lake	Sharon East	Sharon East	Belleville	Short Run	Somerset	Somerset	Confluence	Murdock	Ralston
LATITUDE	3,700 ft. S 41°17'30"	5,100 ft. S 41°12'30"	4,100 ft. S 41°12'30"	11,000 ft. S 40°32'30"	7,100 ft. S 41°37'30"	4,800 ft. S 40°05'00"	2,875 ft. S 40°05'00"	7,175 ft. S 39°52'30"	2,430 ft. S 39°57'30"	2,300 ft. S 41°35'00"
LONGITUDE	8,600 ft. W 80°00'00"	5,900 ft. W 80°27'30"	7,250 ft. W 80°27'30"	1,000 ft. W 77°37'30"	10,125 ft. W 77°45'00"	10,400 ft. W 79°02'30"	25 ft. W 79°02'30"	7,600 ft. W 79°15'00"	9,730 ft. W 79°00'00"	3,300 ft. W 79°57'30"
DATE COMPLETED	2-13-85	3-8-85	4-18-85	2-9-85	8-2-84	12-20-83	1-29-84	5-24-85	5-31-85	8-28-84
ELEVATION	1405 GR	835 GR	840 GR	1391 GR	1831 GR	2164 GR	2056 GR	2167 GR	2700 GR	1721 GR
LOGS RECEIVED AND LOGGED INTERVALS		GR/FDC: 4876-5084	GR/FDC: 550-5245	SDN: 5950-13466 HDT: 1800-5991 FIL: 1800-5991 DIL: 50-1748	GR/DBC: 0-6215 GR/LTD: 0-1216 3-D VEL: 4430-5732 T: 30-1224		LTD/CNL: 100-9290 GR/DLL: 1540-9270 HDT: 1521-9290	LTD/CNL: 1621-9212 GR/DLL: 1650-9204		
TULLY LIMESTONE	3890-			Bald Eagle 560-5188	5420-	7666-	7470-	8032-	8040-	4118-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	4090-	3246-		Martinsburg 5188-6194	6154- 6158-	8490- 8510-	8890- 8910-	8867- 8882-	8970- 9000-	5420-
ORISKANY SANDSTONE RIDGELEY SANDSTONE		3434-		Trenton 5188-6194	6228-	8616-	9010-	9016-	9095-	5507-
SILURIAN-DEVONIAN CARBONATES	4222-	3451-		Black River 6194-6602	6235-?	8730-	9105-	9088-		5618-
SALINA GROUP LOCKPORT DOLOMITE	4380- 5220-	3633- 4482-		Chazy 6602-7072						
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	5476-	4788- 4850-		Black River (fault) 7072-7570						
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE		4929- 5046-		Chazy 7570-8338						
QUEENSTON FORMATION				Beekmantown 8338-13,500						
PRODUCING FORMATION	Lockport	Medina	Medina				Ridgeley	Ridgeley		
PRODUCING INTERVAL		4978-5060	4957-5074				9013-9090	9017-9028		
TOTAL DEPTH	5578	5132	5277	13500	6268	8828	9293	9176	9194	5685
DEEPEST FORMATION REACHED	Rochester	Queenston	Queenston	Beekmantown	Helderberg	Helderberg	Helderberg	Helderberg	Ridgeley	Helderberg
RESULTS	30 Mcf Nat. 1,850 psi/360 hrs. development Kilgore pool Wolf Creek field	1,720 Mcf AF 1,400 psi/48 hrs. development Wheatland field	1,164 Mcf AF 1,450 psi/48 hrs. development Wheatland field	Plugged & Abandoned New field wildcat Shows of gas in Middle Ordovician carbonates	Plugged and abandoned New field wildcat	Show of gas Plugged and abandoned development Boswell field	1,632 Mcf AF 3,350 psi/48 hrs. Deeper pool discovery Gideon pool Texas School field	2,600 Mcf AF 3,450 psi/48 hrs. New field discovery Paddytown field	Show of gas development Somerset field	Show of gas Plugged and abandoned New field wildcat

Figure 33. *(Continued).*

COUNTY Permit Number	Tioga 117-20137	Tioga 117-20140	Venango 121-36454	Venango 121-36470	Venango 121-36532	Venango 121-36533	Venango 121-36954	Venango 121-36959	Venango 121-36992	Venango 121-37387
NAME OF WELL	Union-Sun-Biley #1	Tioga State Forest #319	E. Teslovic #1	Wesley Pietz #1-A	R. W. Drake #3	R. W. Drake #2	S. Stanonis #2	W. Nixon #1	Ward & Borger #1	Edward Culbertson #1
OPERATOR	Union Orilling, Incorporated	Wilmoth Interests, Incorporated	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	N.E.A. Cross Company
TOWNSHIP	Covington	Gaines	Canal	Jackson	Jackson	Jackson	Jackson	Jackson	Sugar Creek	Sandycreek
QUADRANGLE	Cherry Flat	Sabinsville	Utica	Utica	Sugar Lake	Sugar Lake	Oempseytown	Franklin	Utica	Kennerdell
LATITUDE	11,650 ft. S 41°45'00"	4,750 ft. S 41°47'30"	4,300 ft. S 41°30'00"	5,000 ft. S 41°30'00"	9,700 ft. S 41°32'30"	8,400 ft. S 41°32'30"	15,050 ft. S 41°32'30"	4,180 ft. S 41°30'00"	10,000 ft. S 41°30'00"	5,875 ft. S 41°22'30"
LONGITUDE	1,150 ft. W 77°10'00"	7,750 ft. W 77°30'00"	650 ft. W 79°57'30"	8,540 ft. W 79°52'30"	3,600 ft. W 79°52'30"	4,600 ft. W 79°52'30"	5,650 ft. W 79°50'00"	4,690 ft. W 79°50'00"	2,490 ft. W 79°52'30"	3,200 ft. W 79°47'30"
DATE COMPLETED	8-7-84	12-4-84	8-1-84	7-19-84	7-28-84	9-7-84	8-8-84	8-20-84	7-27-84	4-28-84
ELEVATION	1980 GR	2220 GR	1360 GR	1318 GR	1300 GR	1395 GR	1334 GR	1390 GR	1095 GR	1460 GR
LOGS RECEIVED AND LOGGED INTERVALS		GR/DBC: 6533-8532 GR/DIL: 1888-8534 Laser: 6540-7630 CBL: 6520-7710	FOC/GR: 624-5514 OLL/GR: 624-5511	OBC/GR: 620-5548 OLL/GR: 620-5544	GR/DBC/CNL: 0-5524 GR/GO: 650-5518 STRATA: 0-5524 GR/PCL: 5140-5489		GR/FOC/CNL: 0-5652 GR/GO: 650-5647 STRATA: 650-5647	OBC/CNL: 608-5757 OLL: 659-5750 GR/PCL: 5400-5706 Laser: 810-5648	FOC/CNL: 632-5466 OLL/GR: 788-5458 Laser: 5180-5380 PCL/GR: 5100-5446	OBC/CNL: 4439-6439
TULLY LIMESTONE	3822-	6084-	3588-	3638-	3594-	3672-	3686-	3776-	3494-	
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	4876-	6920-	3814-	3854-	3818-	3896-	3918-	4010-	3716-	4516-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	4903-	6928-	3947-	3986-	3954-	4036-	4048-	4136-	3844-	
SILURIAN-DEVONIAN CARBONATES	6932-	6958-	3968-	4006-	3983-	4068- -4220	4078-	4168-	3866-	4684-
SALINA GROUP LOCKPORT DOLOMITE		7196- Bloomsburg 8300- McKenzie 8430-	4090- 4868-	4132- 4906-	4085- 4822-	4220- 4878-	4186- 4964-	4282- 5054-	3998- 4772-	4788- 5612-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE			5140- 5210-	5186- 5252-	5124- 5189-	5149- 5266-	5244- 5312-	5330- 5400-	5056- 5122-	5944- 6020-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE			5265- 5400- 5446-	5307- 5454- 5493-	5242- 5382- 5420-	5372- 5460- 5496-	5376- 5512- 5542-	5467- 5600- 5630-	5178- 5326- 5361-	6103- 6250- 6280-
QUEENSTON FORMATION			5458-	5502-	5434-	5515-	5556-	5647-	5372-	6291-
PRODUCING FORMATION			Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL			5284-5359	5325-5398	5297-5372	5380-5457	5416-5508	5501-5587	5225-5324	6162-6244
TOTAL DEPTH	7410	8535	5520	5550	5526	5600	5652	5757	5470	6450
DEEPEST FORMATION REACHED	Helderberg	McKenzie	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	Ory hole Plugged and abandoned New field wildcat	Plugged and abandoned New field wildcat	713 Mcf AF 1,280 psi/48 hrs. development Canal pool McCune Run field	600 Mcf AF 1,425 psi/48 hrs. development Beatty Run pool Cooperstown field	300 Mcf AF 1,425 psi/72 hrs. development Beatty Run pool Cooperstown field	471 Mcf AF 1,450 psi/72 hrs. development Beatty Run pool Cooperstown field	2,500 Mcf AF 1,475 psi/72 hrs. development Beatty Run pool Cooperstown field	750 Mcf AF 1,475 psi/72 hrs. development Beatty Run pool Cooperstown field	1,517 Mcf AF 1,500 psi/72 hrs. development Beatty Run pool Cooperstown field	100 Mcf AF 1,200 psi/48 hrs. extension Victory Run pool Foster-Reno field

COUNTY Permit Number	Venango 121-37391	Venango 121-37577	Venango 121-37727	Venango 121-37728	Venango 121-37756	Venango 121-37758	Venango 121-37908	Venango 121-37909	Venango 121-38214	Venango 121-38233
NAME OF WELL	S. Stanonis #4	W. Small #1	R. A. Paper Co., Inc. #1	T. Heffernan #1	T. Polito #1	C. Whitman #2	C. Whitman #1-A	Donald R. Jacoby #2	Burchfield-Burk #1	A. Trimble #1
OPERATOR	Mark Resources Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Mark Resources Corporation	Mark Resources Corporation	Cabot Oil & Gas Corporation	Mark Resources Corporation	Mark Resources Corporation	Cabot Oil & Gas Corporation
TOWNSHIP	Jackson	Jackson	Jackson	Canal	Oakland	Jackson	Jackson	Jackson	Jackson	Canal
QUADRANGLE	Franklin	Oempseytown	Utica	Utica	Franklin	Sugar Lake	Utica	Franklin	Franklin	Utica
LATITUDE	1,320 ft. S 41°30'00"	2,680 ft. S 41°32'30"	3,600 ft. S 41°30'00"	7,720 ft. S 41°30'00"	5,560 ft. S 41°30'00"	350 ft. S 41°32'30"	3,090 ft. S 41°30'00"	10,280 ft. S 41°30'00"	6,600 ft. S 41°30'00"	7,700 ft. S 41°30'00"
LONGITUDE	4,700 ft. W 79°50'00"	8,700 ft. W 79°50'00"	5,225 ft. W 79°52'30"	5,130 ft. W 79°55'00"	1,020 ft. W 79°50'00"	7,030 ft. W 79°52'30"	7,800 ft. W 79°52'30"	5,380 ft. W 79°50'00"	6,210 ft. W 79°50'00"	8,200 ft. W 79°55'00"
DATE COMPLETED	10-25-84	3-11-85	5-23-84	8-16-84	10-14-84	10-27-84	12-8-84	7-19-84	10-14-84	8-6-84
ELEVATION	1449 GR	1208 GR	1370 GR	1345 GR	1472 GR	1454 GR	1220 GR	1402 GR	1205 GR	1255 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/OBC/CNL: 0-5790 STRATA: 5500-5790		OBC/GR: 625-5614 LL/GR: 625-5608	GR/OBC: 0-5555 GR/GO: 670-5549	GR/OBC/CNL: 0-5796 STRATA: 5450-5796 GR/PCL: 5500-5782			GR/OBC/CNL: 0-5849 GR/PCL: 5400-5843 STRATA: 5558-5721	GR/OBC/CNL: 0-5538 GR/PCL: 5220-5494	FOC/GR: 646-5460 DLL/GR: 646-5459
TULLY LIMESTONE	3816-	3460-	3690-	3636-	3892-	3694-	3533-	3840-	3628-	3544-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	4050-	3691-	3910-	3868-	4131-	3914-	3750-	4074-	3862-	3772-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	4180-	3822-	4038-	4004-	4256-	4057-	3879-	4198-	3990-	3911-
SILURIAN-DEVONIAN CARBONATES	4224-	3850-	4054-	4016-	4286-	4085-	3906-	4226-	4041-	3930-
SALINA GROUP LOCKPORT DOLOMITE	4320- 5059-	4180- 4618-	4180- 4964-	4146- 4920-	4403- 5144-	4234- 4912-	4242- 4700-	4340- 5122-	4140- 4860-	4064- 4810-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	5375- 5440-	4934- 5043-	5244- 5308-	5185- 5257-	5470- 5534-	5137- 5264-	5078- 5140-	5403- 5472-	5182- 5250-	5106- 5163-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5514- 5643- 5674-	5106- 5238- 5272-	5370- 5502- 5544-	5312- 5458- 5498-	5604- 5736-	5372- 5456- 5492-	5203- 5345- 5378-	5540- 5676- 5712-	5317- 5450- 5484-	5218- 5364- 5400-
QUEENSTON FORMATION	5690-	5263-	5557-	5507-		5506-	5390-	5722-	5502-	5413-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5550-5636	5107-5204	5386-5494	5329-5408	5630-5720	5378-5432	5206-5336	5589-5672	5352-5440	5233-5318
TOTAL DEPTH	5793	5356	5640	5562	5814	5610	5442	5861	5551	5480
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	2,500 Mcf AF 1,500 psi/72 hrs. development Beatty Run pool Cooperstown field	500 Mcf AF 1,350 psi/48 hrs. extension Beatty Run pool Cooperstown field	3,260 Mcf AF 1,474 psi/48 hrs. development Beatty Run pool Cooperstown field	996 Mcf AF 1,225 psi/48 hrs. development Canal pool McCune Run field	481 Mcf AF 1,450 psi/72 hrs. development Beatty Run pool Cooperstown field	750 Mcf AF 1,450 psi/72 hrs. development Beatty Run pool Cooperstown field	600 Mcf AF 1,350 psi/48 hrs. development Beatty Run pool Cooperstown field	1,391 Mcf AF 1,450 psi/72 hrs. extension Galloway pool Franklin-Oak Forest field	1,350 Mcf AF 1,250 psi/72 hrs. development Beatty Run pool Cooperstown field	778 Mcf AF 1,275 psi/48 hrs. development Canal pool McCune Run field

Figure 33. *(Continued).*

COUNTY Permit Number	Venango 121-38235	Venango 121-38237	Venango 121-38465	Venango 121-38467	Venango 121-38498	Venango 121-38499	Venango 121-38829	Venango 121-38830	Venango 121-38848	Venango 121-38849
NAME OF WELL	P. H. Oeeter (North) #1	C. Shaffer #3	Marc Glasgow #2	G. Fleming #2	R. D. Burkhardt #6	H. M. Cannon #1	P. Oeeter (North) #3	Rensma-Nichols #1	Joseph Judson #1	L. Metz #1
OPERATOR	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation
TOWNSHIP	Jackson	Sugar Creek	Jackson	Jackson	Sugar Creek	Jackson	Jackson	Jackson	Canal	Jackson
QUADRANGLE	Oempseytown	Franklin	Franklin	Franklin	Utica	Franklin	Oempseytown	Sugar Lake	Sugar Lake	Utica
LATITUDE	12,820 ft. S 41°32'30"	9,690 ft. S 41°27'30"	6,050 ft. S 41°30'00"	11,450 ft. S 41°30'00"	6,900 ft. S 41°27'30"	11,400 ft. S 41°30'00"	9,250 ft. S 41°32'30"	3,400 ft. S 41°32'30"	11,550 ft. S 41°32'30"	3,590 ft. S 41°30'00"
LONGITUDE	6,600 ft. W 78°50'00"	8,620 ft. W 79°50'00"	9,550 ft. W 79°50'00"	7,050 ft. W 79°50'00"	2,100 ft. W 79°52'30"	10,330 ft. W 79°50'00"	6,140 ft. W 79°50'00"	5,240 ft. W 79°55'00"	1,300 ft. W 79°55'00"	2,550 ft. W 79°52'30"
DATE COMPLETED	10-1-84	9-24-84	9-7-84	8-13-84	10-6-84	10-18-84	3-2-85	10-3-84	8-31-84	9-14-84
ELEVATION	1141 GR	1205 GR	1190 GR	1470 GR	1243 GR	1350 GR	1360 GR	1510 GR	1555 GR	1360 GR
LOGS RECEIVED AND LOGGED INTERVALS		GR/OBC: 0-5700		OBC/CNL: 614-5902 OLL: 625-5902 GR/PCL: 5500-5861 Laser: 657-5800	GR/OBC/CNL: 0-5720	GR/GO: 700-5743 STRATA: 5470-5569		GR/GO: 600-5576 STRATA: 5300-5580	OBC/GR: 626-5665 OLL/GR: 626-4806	OBC/GR: 0-5619 GR/GO: 670-5614
TULLY LIMESTONE	3474-	3720-	3574-	3918-	3718-	3776-	3680-	3681-	3805-	3696-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3706-	3950-	3304-	4150-	3945-	4003-	3910-	3903-	4020-	3918-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3834-	4076-	3934-	4272-	4066-	4130-	4042-	4044-	4158-	4050-
SILURIAN-DEVONIAN CARBONATES	3854-	4109-	3966- -4150	4300-	4098-	4171-	4060-	4077-	4186-	4064-
SALINA GROUP LOCKPORT DOLOMITE	4030- 4712-	4216- 5038-	4150- 4814-	4414- 5194-	4171- 4970-	4279- 5050-	4228- 4934-	4164- 4937-	4288- 5042-	4188- 4936-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4948- 5100-	5335- 5390-	5068- 5198-	5473- 5542-	5301- 5365-	5354- 5402-	5168- 5288-	5207- 5271-	5322- 5386-	5242- 5318-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5212- 5300- 5330-	5463- 5606- 5632-	5306- 5402- 5432-	5601- 5752- 5782-	5438- 5582- 5608-	5467- 5609- 5640-	5418- 5472- 5534-	5320- 5471- 5502-	5449- 5586- 5622-	5372- 5520- 5554-
QUEENSTON FORMATION	5344-	5648-	5451-	5799-	5622-	5656-	5534-	5516-	5630-	5564-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5202-5295	5509-5597	5310-5400	5655-5748	5440-5572	5520-5601	5392-5483	5376-5469	5452-5548	5389-5491
TOTAL DEPTH	5437	5705	5560	5902	5729	5745	5650	5583	5680	5631
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	750 Mcf AF 1,450 psi/72 hrs. development Beatty Run pool Cooperstown field	400 Mcf AF 1,200 psi/72 hrs. extension Takitezy pool Sugar Creek-Niles field	1,958 Mcf AF 1,425 psi/72 hrs. development Beatty Run pool Cooperstown field	500 Mcf AF 1,475 psi/72 hrs. development Galloway pool Franklin-Oak Forest field	160 Mcf AF 1,350 psi/72 hrs. extension Takitezy pool Sugar Creek-Niles field	520 Mcf AF 1,350 psi/72 hrs. development Beatty Run pool Cooperstown field	728 Mcf AF 1,480 psi/72 hrs. development Beatty Run pool Cooperstown field	195 Mcf AF 1,200 psi/72 hrs. development Oeckard pool Cochranton field	652 Mcf AF 1,290 psi/48 hrs. extension Beatty Run pool Cooperstown field	3,500 Mcf AF 1,075 psi/48 hrs. development Beatty Run pool Cooperstown field

COUNTY Permit Number	Venango 121-38851	Venango 121-38852	Venango 121-39029	Venango 121-39032	Venango 121-39033	Venango 121-39034	Venango 121-39038	Venango 121-39040	Venango 121-39105	Venango 121-39108
NAME OF WELL	R. Noel #1	R. Oeeter & P. H. Oeeter #1	C. Beck #1	P. H. Oeeter (North) #6	P. H. Oeeter #8	P. H. Oeeter #9	Ralph Oeeter #1	L. Fisher #1	R. Whitmer #1	J. J. & B. E. Wallace #1
OPERATOR	Mark Resources Corporation	Mark Resources Corporation	Cabot Oil & Gas Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Mark Resources Corporation
TOWNSHIP	Plum	Jackson	Canal	Jackson	Jackson	Jackson	Canal	Jackson	Jackson	Jackson
QUADRANGLE	Oempseytown	Oempseytown	Sugar Lake	Oempseytown	Oempseytown	Oempseytown	Sugar Lake	Utica	Franklin	Sugar Lake
LATITUDE	10,250 ft. S 41°35'00"	4,500 ft. S 41°32'30"	13,500 ft. S 41°32'30"	5,400 ft. S 41°32'30"	3,400 ft. S 41°32'30"	4,850 ft. S 41°32'30"	10,000 ft. S 41°32'30"	2,410 ft. S 41°30'00"	2,030 ft. S 41°30'00"	8,200 ft. S 41°32'30"
LONGITUDE	4,750 ft. W 79°50'00"	8,150 ft. W 79°50'00"	3,500 ft. W 79°55'00"	6,750 ft. W 79°50'00"	6,600 ft. W 79°50'00"	9,950 ft. W 79°50'00"	6,650 ft. W 79°55'00"	1,100 ft. W 79°52'30"	6,270 ft. W 79°50'00"	300 ft. W 79°52'30"
DATE COMPLETED	9-23-84	9-21-84	10-27-84	2-26-85	12-7-84	11-29-84	2-11-85	11-19-84	9-27-84	9-30-84
ELEVATION	1383 GR	1195 GR	1390 GR	1173 GR	1180 GR	1522 GR	1189 GR	1159 GR	1408 GR	1408 GR
LOGS RECEIVED AND LOGGED INTERVALS		GR/PCL: 5050-5361			GR/OBC/CNL: 0-5391 GR/GO: 764-4288 GR/PCL: 5000-5359 STRATA: 5156-5400	GR/OBC/CNL: 0-5688 GR/GO: 930-5662 STRATA: 5400-5668 GR/PCL: 5350-5666		OBC/GR: 0-5401 GR/GO: 630-5396		STRATA: 3900-5643
TULLY LIMESTONE	3596-		3639-	3450-	3449-	3781-	3774-	3486-	3770-	
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3826-		3858-	3680-	3678-	4011-	4002-	3712-	4002-	
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3962-		3996-	3812-	3812-	4142-	4143-	3846-	4131-	
SILURIAN-DEVONIAN CARBONATES	3992-		4023-	3832-	3846-	4214-	4180-	3866-	4160-	
SALINA GROUP LOCKPORT DOLOMITE	4126- 4774-		4348- 4806-	3994- 4692-	3905- 4653-	4268- 4992-	4442- 4960-	3988- 4768-	4498- 4970-	
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	5030- 5156-	5064-	5170- 5236-	4972- 5040-	4966- 5030-	5310- 5370-	4309- 5330-	5050- 5112-	5330- 5397-	5310-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5264- 5332- 5380-	5105- 5240- 5270-	5293- 5437- 5469-	5164- 5236- 5268-	5095- 5232- 5260-	5432- 5561- 5598-	5439- 5581- 5613-	5178- 5312- 5346-	5463- 5599- 5633-	5356- 5477- 5512-
QUEENSTON FORMATION	5394-	5286-	5480-	5282-	5273-	5612-	5623-	5375-	5646-	5527-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5256-5325	5149-5232	5298-5384	5140-5227	5136-5216	5476-5552	5451-5543	5186-5299	5467-5572	5383-5474
TOTAL DEPTH	5472	5397	5545	5374	5400	5690	5760	5404	5722	5645
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	2,440 Mcf AF 1,475 psi/72 hrs. extension Beatty Run pool Cooperstown field	3,100 Mcf AF 1,500 psi/72 hrs. extension Beatty Run pool Cooperstown field	750 Mcf AF 1,450 psi/48 hrs. development Beatty Run pool Cooperstown field	1,350 Mcf AF 1,550 psi/72 hrs. development Beatty Run pool Cooperstown field	531 Mcf AF 1,500 psi/72 hrs. development Beatty Run pool Cooperstown field	750 Mcf AF 1,375 psi/72 hrs. development Beatty Run pool Cooperstown field	2,200 Mcf AF 1,300 psi/48 hrs. development Oeckard pool Cochranton field	250 Mcf AF 1,530 psi/48 hrs. development Beatty Run pool Cooperstown field	2,700 Mcf AF 1,250 psi/48 hrs. development Beatty Run pool Cooperstown field	1500 Mcf AF 1,375 psi/72 hrs. development Beatty Run pool Cooperstown field

Figure 33. *(Continued).*

COUNTY Permit Number	Venango 121-39113	Venango 121-39115	Venango 121-39116	Venango 121-39117	Venango 121-39203-P	Venango 121-39204	Venango 121-39320	Venango 121-39337	Venango 121-39701	Venango 121-39702
NAME OF WELL	J. J. Wallace #2	J. J. Wallace #1	P. H. Oeeter (North) #7	O. & W. Gum #1	R. Mitchell #3	Wesley Pietz #2	J. J. Wallace #1	Oeeter-Cooperstown Water Co. #1	J. Faller #1	J. Salter #2
OPERATOR	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Mark Resources Corporation	Mark Resources Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation
TOWNSHIP	Jackson	Jackson	Jackson	Jackson	Jackson	Canal & Jackson	Jackson	Jackson	Canal	Canal
QUADRANGLE	Dempseytown	Oempseytown	Oempseytown	Sugar Lake	Oempseytown	Utica	Oempseytown	Utica	Utica	Utica
LATITUDE	9,050 ft. S 41°32'30"	2,800 ft. S 41°32'30"	4,850 ft. S 41°32'30"	850 ft. S 41°32'30"	10,600 ft. S 41°32'30"	6,900 ft. S 41°30'00"	6,450 ft. S 41°32'30"	650 ft. S 41°30'00"	1,200 ft. S 41°30'00"	8,225 ft. S 41°30'00"
LONGITUDE	3,600 ft. W 79°50'00"	1,600 ft. W 79°50'00"	5,100 ft. W 79°50'00"	8,800 ft. W 79°52'30"	8,550 ft. W 79°50'00"	7,500 ft. W 79°52'30"	4,500 ft. W 79°50'00"	3,500 ft. W 79°52'30"	4,500 ft. W 79°55'00"	10,110 ft. W 79°55'00"
DATE COMPLETED	4-13-85	11-25-84	2-23-85	12-22-84	3-2-85	11-27-84	11-8-84	11-9-84	1-4-85	12-13-84
ELEVATION	1391 GR	1500 GR	1301 GR	1504 GR	1148 GR	1290 GR	1425 GR	1420 GR	1580 GR	1285 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/OBC/CNL: 892-5589 GR/LL: 892-5593 Laser: 3875-5500 PCL: 5250-5554	GR/FOC/CNL: 0-5690 STRATA: 5350-5660		GR/OBC/CNL: 0-5608 GR/GO: 610-5600 GR/PCL: 5240-5588 STRATA: 780-5608	DBC/GR: 0-5414 GO/GR: 528-5406		GR/OBC/CNL: 0-5705 STRATA: 5300-5684	GR/OBC/CNL: 0-5722 GR/GD: 650-5716 STRATA: 5240-5695 GR/PCL: 5300-5715		FOC/GR: 627-5484 OLL/GR: 627-5485
TULLY LIMESTONE	3640-	3774-	3590-	3672-	3454-	3622-	3727-	3720-	3832-	3557-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3874-	4010-	3820-	3898-	3684-	3840-	3958-	3944-	4060-	3785-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	4002-	4138-	3954-	4040-	3814-	3979-	4084-	4072-	4140-	3924-
SILURIAN-DEVONIAN CARBONATES	4032-	4178-	3978-	4066-	3830-	4009-	4112-	4108-	4221-	3945-
SALINA GROUP LOCKPORT DOLOMITE	4132- 4868-	4263- 5023-	4136- 4820-	4160- 4898-	3948- 4718-	4342- 4818-	4214- 4978-	4214- 4957-	4550- 5012-	4070- 4798-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	5188- 5251-	5303- 5366-	5106- 5178-	5185- 5244-	4996- 5064-	5178- 5244-	5257- 5322-	5276- 5334-	5375- 5441-	5118- 5178-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5321- 5452- 5482-	5431- 5553- 5594-	5298- 5374- 5404-	5304- 5439- 5472-	5126- 5212- 5296-	5309- 5448- 5481-	5392- 5514- 5550-	5398- 5541- 5568-	5500- 5643- 5627-	5240- 5380- 5416-
QUEENSTON FORMATION	5494-	5608-	5418-	5488-	5307-	5493-	5563-	5598-	5640-	5428-
PRODUCING FORMATION	Medina	Medina	Medina	Medina		Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5359-5442	5467-5537	5282-5366	5355-5436		5317-5416	5431-5507	5533-5592	5507-5634	5249-5348
TOTAL DEPTH	5603	5710	5535	5608	5418	5597	5710	5726	5740	5496
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	3,660 Mcf AF 1,500 psi/72 hrs. development Beatty Run pool Cooperstown field	1,500 Mcf AF 1,500 psi/72 hrs. development Beatty Run pool Cooperstown field	550 Mcf AF 1,500 psi/72 hrs. development Beatty Run pool Cooperstown field	3,700 Mcf AF 1,490 psi/72 hrs. development Beatty Run pool Cooperstown field	Show of gas Plugged & abandoned development Beatty Run pool Cooperstown field	200 Mcf AF 1,260 psi/48 hrs. development Beatty Run pool Cooperstown field	650 Mcf AF 1,450 psi/72 hrs. development Beatty Run pool Cooperstown field	500 Mcf AF 1,450 psi/72 hrs. development Beatty Run pool Cooperstown field	2,500 Mcf AF 925 psi/48 hrs. development Canal pool McCune Run field	200 Mcf AF 1,000 psi/48 hrs. development Canal pool McCune Run field

COUNTY Permit Number	Venango 121-39749	Venango 121-39751	Venango 121-39819	Venango 121-39828	Venango 121-39891	Venango 121-39892	Venango 121-39893	Venango 121-39894	Venango 121-39895	Venango 121-40024
NAME OF WELL	C. Hazlett #1	O. McClelland #1	Beatty-Oeem-Tyger- Hummel-Bennett #1	Miller-Gravatt #1	Rainbow Beagle Club #2	R. Gilliland #2	E. Engleskirger #1-S	E. Morris #1	G. Spangler #1	Schaub #1
OPERATOR	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Mitchell Energy Corporation	Mark Resources Corporation
TOWNSHIP	Jackson	Jackson	Jackson	Jackson	Jackson	Canal	Canal	Canal	Oakland	Jackson
QUADRANGLE	Sugar Lake	Sugar Lake	Sugar Lake	Franklin	Utica	Utica	Utica	Utica	Oempseytown	Utica
LATITUDE	12,500 ft. S 41°35'00"	2,150 ft. S 41°32'30"	1,150 ft. S 41°32'30"	9,150 ft. S 41°30'00"	1,000 ft. S 41°30'00"	12,120 ft. S 41°30'00"	13,650 ft. S 41°30'00"	12,700 ft. S 41°30'00"	2,580 ft. S 41°32'30"	6,350 ft. S 41°30'00"
LONGITUDE	11,100 ft. W 79°52'30"	7,700 ft. W 79°52'30"	3,850 ft. W 79°52'30"	3,700 ft. W 79°50'00"	8,800 ft. W 79°52'30"	9,670 ft. W 79°55'00"	4,915 ft. W 79°57'30"	2,970 ft. W 79°57'30"	9,250 ft. W 79°45'00"	1,150 ft. W 79°52'30"
DATE COMPLETED	12-22-84	4-4-85	4-2-85	1-12-85	12-23-84	3-4-85	10-16-84	1-1-85	12-18-84	1-13-85
ELEVATION	1375 GR	1410 GR	1280 GR	1235 GR	1391 GR	1451 GR	1239 GR	1190 GR	1454 GR	1103 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/OBC/CNL: 706-5396		GR/OBC/CNL: 0-5428 GR/LL: 840-5428 PCL: 5080-5380	GR: 0-5642 GR/PCL: 5300-5647 CBL: 4700-5638	GR/CBL: 3120-5586	GR/OBC: 0-5674			GR/OBC/CNL: 602-5754 OLL/GR: 602-5746	GR/OBC: 0-5446 GR/PCL: 5050-5421 STRATA: 5100-5446 GR/GO: 570-5438
TULLY LIMESTONE	3530-	3620-	3510-	3676-	3682-	3740-	3530-	3481-	3778-	3460-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3750-	3844-	3738-	3914-	3905-	3975-	3752-	3708-	4030-	3684-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3898-	3986-	3881-	4042-	4032-	4113-	3890-	3848-	4156-	3816-
SILURIAN-DEVONIAN CARBONATES	3928-	4006-	3904-	4070-	4052-	4128-	3920-	3877-	4180-	3846-
SALINA GROUP LOCKPORT DOLOMITE	4038- 4702-	4166- 4850-	4003- 4751-	4188- 4966-	4202- 4938-	4256- 5024-	4251- 4730-	4212- 4681-	4284- 5125-	3964- 4737-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	5019- 5083-	5078- 5206-	5033- 5097-	5250- 5318-	5248- 5289-	5307- 5368-	5093- 5153-	5030- 5107-	5323- 5402-	5016- 5082-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5143- 5278- 5310-	5310- 5394- 5430-	5160- 5262- 5324-	5394- 5504- 5558-	5352- 5491- 5526-	5430- 5561- 5606-	5221- 5370- 5403-	5171- 5318- 5350-	5450- 5592- 5634-	5148- 5284- 5316-
QUEENSTON FORMATION	5326-	5446-	5338-	5572-	5538-	5617-	5413-	5360-	5642-	5330-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5193-5254	5302-5380	5181-5251	5423-5483	5354-5481	5431-5536	5224-5334	5174-5304	5501-5640	5203-5276
TOTAL DEPTH	5396	5560	5430	5680	5644	5711	5475	5463	5760	5449
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	550 Mcf AF 1,470 psi/72 hrs. Deeper pool discovery Willson Mills pool Lake Creek field	950 Mcf AF 1,480 psi/72 hrs. development Beatty Run pool Cooperstown field	1,000 Mcf AF 1,475 psi/72 hrs. development Beatty Run pool Cooperstown field	560 Mcf AF 1,470 psi/72 hrs. development Beatty Run pool Cooperstown field	1,900 Mcf AF 1,180 psi/48 hrs. development Beatty Run pool Cooperstown field	425 Mcf AF 1,325 psi/48 hrs. development Canal pool McCune Run field	350 Mcf AF 1,400 psi/48 hrs. development Canal pool McCune Run field	300 Mcf AF 1,100 psi/48 hrs. development Canal pool McCune Run field	2,482 Mcf AF 1,450 psi/190 hrs. extension Beatty Run pool Cooperstown field	900 Mcf AF 1,500 psi/72 hrs. development Beatty Run pool Cooperstown field

Figure 33. *(Continued).*

COUNTY Permit Number	Venango 121-40041	Venango 121-40042	Venango 121-40044	Venango 121-40045	Venango 121-40047	Venango 121-40235	Venango 121-40236	Venango 121-40237	Venango 121-40380	Venango 121-40496
NAME OF WELL	R. Bickel #2	N. Lipchak #1	T. Carson #1	D. Bell #1	Fraternal Order of Eagles #1	R. Holmes #1	R. McCune #1	Lawrence Huff #1	J. Williams #1	W. & A. Long #1
OPERATOR	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Mark Resources Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Mark Resources Corporation
TOWNSHIP	Canal	Canal	Canal	Canal	Jackson	Plum	Canal	Oakland	Sugar Creek	Canal
QUADRANGLE	Utica	Utica	Utica	Utica	Utica	Dempseytown	Utica	Franklin	Utica	Utica
LATITUDE	11,100 ft. S 41°30'00"	11,800 ft. S 41°30'00"	2,075 ft. S 41°30'00"	9,450 ft. S 41°30'00"	9,150 ft. S 41°30'00"	5,550 ft. S 41°35'00"	13,090 ft. S 41°30'00"	6,250 ft. S 41°30'00"	1,450 ft. S 41°27'30"	6,000 ft. S 41°30'00"
LONGITUDE	11,150 ft. W 79°57'30"	5,280 ft. W 79°57'30"	3,200 ft. W 79°57'30"	8,910 ft. W 79°52'30"	1,100 ft. W 79°52'30"	820 ft. W 79°47'30"	9,425 ft. W 79°57'30"	10,525 ft. W 79°45'00"	7,480 ft. W 79°52'30"	11,300 ft. W 79°52'30"
DATE COMPLETED	1-17-85	2-22-85	2-4-85	1-23-85	1-28-85	2-20-85	2-11-85	2-13-85	1-30-85	3-20-85
ELEVATION	1282 GR	1140 GR	1558 GR	1155 GR	1096 GR	1444 GR	1110 GR	1443 GR	1310 GR	1325 GR
LOGS RECEIVED AND LOGGED INTERVALS	OBC/GR: 530-5438 LL/GR: 530-5472	GR/OBC: 0-5369 GR/GO: 540-5363	GR/DBC: 0-5684 GR/GD: 672-5678	OBC/GR: 0-5356	GR/PCL: 0-5417 GR/CBL: 4600-5414		GR/DBC: 0-5320 GR/GO: 550-5318			
TULLY LIMESTONE	3549-	3433-	3762-	3413-	3480-	3715-	3390-	3927-	3734-	3652-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3762-	3656-	3986-	3630-	3705-	3913-	3606-	4181-	3949-	3864-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3902-	3794-	4121-	3772-	3832-	4096-	3746-	4300-	4029-	3996-
SILURIAN-DEVONIAN CARBONATES	3936-	3827-	4142-	3797-	3862-	4127-	3780-	4322-	4053-	4016-
SALINA GROUP LOCKPORT DOLOMITE	4043- 4772-	3936- 4715-	4258- 5034-	3851- 4690-	3983- 4752-	4437- 4848-	3890- 4666-	4670- 5143-	4444- 4922-	4195- 4912-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	5098- 5156-	4996- 5056-	5314- 5378-	4972- 5027-	5027- 5100-	5203- 5270-	4942- 4995-	5505- 5581-	5283- 5359-	5126- 5256-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5218- 5366- 5398-	5117- 5216- 5297-	5434- 5577- 5612-	5101- 5236- 5274-	5167- 5308- 5340-	5330- 5454- 5500-	5070- 5214- 5250-	5651- 5782- 5818-	5426- 5565- 5599-	5358- 5459- 5493-
QUEENSTON FORMATION	5408-	5308-	5624-	5286-	5353-	5510-	5259-	5830-	5612-	5506-
PRODUCING FORMATION	Medina	Medina	Medina	Madina	Medina	Medina	Medina		Medina	Medina
PRODUCING INTERVAL	5220-5363	5119-5263	5437-5558	5095-5226	5213-5294	5339-5434	5068-5206		5428-5552	5362-5445
TOTAL DEPTH	5490	5389	5701	5365	5461	5574	5325	5891	5674	5600
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Quaenston	Queenston	Queenston	Queenston	Quaenston	Queenston	Queenston
RESULTS	560 Mcf AF 1,200 psi/48 hrs. development Cochranton field	2,190 Mcf AF 1,125 psi/48 hrs. development Canal pool McCune Run field	473 Mcf AF 1,225 psi/48 hrs. development Canal pool McCune Run field	250 Mcf AF 1,210 psi/48 hrs. davelopment Cochranton field	850 Mcf AF 1,490 psi/72 hrs. devalopment Baatty Run pool Cooparstown field	500 Mcf AF 1,401 psi/48 hrs. extenslon Beatty Run pool Cooparstown fiald	316 Mcf AF 850 psi/48 hrs. development Canal pool McCune Run field	Ory and abandonad Oaaper pool test Oil City-Rouseville flald	210 Mcf AF 1,120 psi/48 hrs. extenslon Takitezy pool Sugar Creek-Niles field	2,840 Mcf AF 1,525 psi/72 hrs. development Canal pool McCune Run field

COUNTY Permit Number	Venango 121-40497	Venango 121-40499	Venango 121-40500	Venango 121-40513	Venango 121-40556	Venango 121-40600	Venango 121-40778	Venango 121-40779	Venango 121-40781	Venango 121-40783
NAME OF WELL	W. & A. Long #2	P. J. McElhaney #2	Wilson #1	Allis #1	R. Whitmer #2-A	M. Shay #1	B. Fleming #1	B. Fleming #2	R. & M. Painter #2	D. C. Haun #1
OPERATOR	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Quaker State Oil Refining Corp.	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation
TOWNSHIP	Canal	Jackson	Jackson	Allegheny	Jackson	Plum	Jackson	Jackson	Jackson	Jackson
QUADRANGLE	Utica	Dempseytown	Oempseytown	Pleasantville	Franklin	Oempseytown	Oempseytown	Oempseytown	Oempseytown	Dempseytown
LATITUDE	6,600 ft. S 41°30'00"	700 ft. S 41°32'30"	9,800 ft. S 41°32'30"	12,800 ft. S 41°37'30"	3,450 ft. S 41°30'00"	12,110 ft. S 41°35'00"	9,795 ft. S 41°32'30"	8,095 ft. S 41°32'30"	3,050 ft. S 41°32'30"	6,350 ft. S 41°32'30"
LONGITUDE	9,900 ft. W 79°52'30"	4,800 ft. W 79°50'00"	10,950 ft. W 79°50'00"	6,350 ft. W 79°30'00"	8,215 ft. W 79°50'00"	7,310 ft. W 79°50'00"	1,350 ft. W 79°50'00"	1,790 ft. W 79°50'00"	4,850 ft. W 79°50'00"	1,800 ft. W 79°50'00"
DATE COMPLETED	2-24-85	2-8-85	2-7-85	3-10-85	2-16-85	3-1-85	3-15-85	4-2-85	3-8-85	3-16-85
ELEVATION	1360 GR	1450 GR	1435 GR	1510 GR	1280 GR	1255 GR	1152 GR	1360 GR	1303 GR	1409 GR
LOGS RECEIVED AND LOGGED INTERVALS		GR/OBC/CNL: 0-5990 STRATA: 628-5586 GR/GO: 628-5586 GR/PCL: 5190-5577	GR/DBC/CNL: 0-4530 GR: 3950-5676 CBL: 4800-5678		FOC/GR: 600-5558		GR/DBC/CNL: 0-5432 GR/OLL: 600-5422 GR/CBL: 4500-5373 STRATA: 5150-5449		GR/OBC/CNL: 0-5540 PCL: 5267-5344	
TULLY LIMESTONE	3672-	3619-	3758-	3966-	3630-	3480-	3478-	3676-	3582-	3710-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3880-	3850-	3982-	4248-	3862-	3719-	3716-	3912-	3814-	3948-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	4026-	3982-	4121-	Bois Blanc/Oriskany 4324-	3993-	3845-	3844-	4040-	3945-	4075-
SILURIAN-DEVONIAN CARBONATES	4046-	4008-	4140-	4336-	4010-	3868-	3874-	4058-	3974-	4092-
SALINA GROUP LOCKPORT DOLOMITE	4222- 4900-	4107- 4848-	4250- 5004-	4518- 5234-	4140- 4890-	4191- 4623-	3974- 4724-	4228- 4895-	4070- 4824-	4260- 4926-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	5162- 5286-	5132- 5200-	5284- 5352-	5546- 5656-	5192- 5258-	4980- 5048-	5024- 5090-	5158- 5284-	5108- 5170-	5248- 5316-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5416- 5496- 5530-	5263- 5395- 5427-	5419- 5548- 5582-	5731- 5817- 5851-	5324- 5460- 5494-	5111- 5243- 5228-	5155- 5290- 5324-	5400- 5483- 5516-	5233- 5368- 5400-	5433- 5507- 5544-
QUEENSTON FORMATION	5542-	5438-	5594-	5861-	5508-	5237-	5333-	5527-	5412-	5556-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5403-5490	5306-5390	5454-5536	5740-5859	5336-5439	5136-5229	5189-5278	5408-5474	5267-5309	5422-5501
TOTAL DEPTH	5645	5594	5596	6043	5570	5370	5445	5640	5540	5650
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,050 Mcf AF 1,550 psi/72 hrs. development Canal pool McCune Run field	800 Mcf AF 1,495 psi/72 hrs. development Beatty Run pool Cooperstown field	540 Mcf AF 1,475 psi/72 hrs. development Beatty Run pool Cooperstown field	100 Mcf AF 1,300 psi/48 hrs. Deeper pool test Neilltown pool Pleasantville field	2,950 Mcf AF 1,190 psi/48 hrs. development Beatty Run pool Cooperstown field	500 Mcf AF 1,310 psi/48 hrs. development Beatty Run pool Cooperstown field	500 Mcf AF 1,480 psi/72 hrs. development Beatty Run pool Cooperstown field	1,200 Mcf AF 1,480 psi/72 hrs. development Beatty Run pool Cooperstown field	1,540 Mcf AF 1,500 psi/72 hrs. development Beatty Run pool Cooperstown field	2,500 Mcf AF 1,460 psi/72 hrs. development Beatty Run pool Cooperstown field

Figure 33. *(Continued).*

COUNTY Permit Number	Venango 121-40785	Venango 121-40786	Venango 121-40787	Venango 121-40888	Venango 121-40904	Venango 121-41116	Venango 121-41118	Venango 121-41119	Venango 121-41121	Venango 121-41122
NAME OF WELL	C. J. Cutchall #2	R. G. Noel #3	R. G. Noel #4	O. C. Haun #2	Miese-Allio- Stanonis-Deeter #2	Klein #2	F. E. Bell #1	C. Whitman #3	Robert Banister #1	Ralph Mitchell #2
OPERATOR	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation
TOWNSHIP	Jackson	Jackson	Plum	Jackson	Cooperstown	Jackson	Plum	Jackson	Canal	Jackson
QUADRANGLE	Sugar Lake	Oempseytown	Oempseytown	Oempseytown	Franklin	Sugar Lake	Oempseytown	Sugar Lake	Utica	Oempseytown
LATITUDE	5,300 ft. S 41°32'30"	11,550 ft. S 41°35'00"	10,250 ft. S 41°35'00"	7,300 ft. S 41°32'30"	150 ft. S 41°30'00"	12,800 ft. S 41°35'00"	8,600 ft. S 41°35'00"	14,050 ft. S 41°32'30"	3,450 ft. S 41°30'00"	12,200 ft. S 41°32'30"
LONGITUDE	4,700 ft. W 79°52'30"	5,350 ft. W 79°50'00"	2,750 ft. W 79°50'00"	300 ft. W 79°50'00"	10,050 ft. W 79°50'00"	8,800 ft. W 79°52'30"	7,500 ft. W 79°50'00"	6,500 ft. W 79°52'30"	790 ft. W 79°55'00"	10,400 ft. W 79°50'00"
DATE COMPLETED	3-28-85	4-12-85	4-22-85	4-4-85	3-17-85	5-24-85	5-24-85	5-31-85	5-27-85	5-23-85
ELEVATION	1362 GR	1405 GR	1320 GR	1225 GR	1125 GR	1385 GR	1233 GR	1370 GR	1462 GR	1186 GR
LOGS RECEIVED AND LOGGED INTERVALS	GR/OBC/CNL: 600-5532 PCL: 5150-5497 STRATA: 5250-5550	GR/OBC/CNL: 608-5476 GR/OLL: 608-5464 Laser: 620-5360 PCL: 5100-5464	GR/DBC/CNL: 0-5418 GR/LL: 597-5409 STRATA: 3740-5302 PCL: 5090-5376		GR/FOC/CNL: 0-5391 GR/OIL: 630-5391 GR: 5050-5362	GR/OBC/CNL: 0-5401 GR/LL: 510-5401 STRATA: 515-5344 PCL: 5090-5377	GR/OBC/CNL: 0-5298 GR/LL: 760-5300 STRATA: 3650-5227 PCL: 4970-5273	GR/OBC/CNL: 0-5424 PCL: 5100-5397 STRATA: 3775-3950 GR/LL: 600-4300	OBC/GR: 508-5675 LL/GR: 752-5676	OBC/GR: 0-5402 LL/GR: 560-5395
TULLY LIMESTONE	3612-	3546-	3510-	3568-	3458-	3548-	3424-	3560-	3746-	3486-
ONONDAGA LIMESTONE MUNTERSVILLE CHERT	3840-	3776-	3742-	3806-	3686-	3770-	3652-	3776-	3966-	3714-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3980-	3910-	3876-	3934-	3816-	3914-	3788-	3922-	4092-	3845-
SILURIAN-DEVONIAN CARBONATES	4000-	3938-	3908-	3956-	3848-	3946-	3815-	3942-	4106-	3912-
SALINA GROUP LOCKPORT DOLOMITE	4056- 4822-	4030- 4772-	3998- 4720-	4120- 4806-	3956- 4732-	4038- 4722-	3910- 4646-	4044- 4740-	4230- 4990-	3984- 4742-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	5142- 5200-	5052- 5120-	5002- 5066-	5076- 5176-	5011- 5077-	5040- 5102-	4926- 4990-	5056- 5126-	5295- 5360-	5034- 5098-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5261- 5370- 5428-	5180- 5310- 5344-	5132- 5254- 5292-	5282- 5374- 5406-	5142- 5277- 5310-	5160- 5276- 5330-	5050- 5154- 5214-	5184- 5314- 5352-	5422- 5558- 5592-	5161- 5297- 5330-
QUEENSTON FORMATION	5442-	5356-	5302-	5419-	5328-	5344-	5226-	5366-	5604-	5343-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5305-5369	5241-5294	5183-5250	5286-5363	5187-5268	5200-5270	5096-5150	5223-5258	5426-5484	5166-5274
TOTAL DEPTH	5540	5470	5441	5508	5398	5430	5315	5450	5681	5420
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,020 Mcf AF 1,520 psi/72 hrs. development Beatty Run pool Cooperstown field	700 Mcf AF 1,475 psi/72 hrs. development Beatty Run pool Cooperstown field	750 Mcf AF 1,500 psi/72 hrs. development Beatty Run pool Cooperstown field	1,600 Mcf AF 1,500 psi/72 hrs. development Beatty Run pool Cooperstown field	1,050 Mcf AF 1,520 psi/72 hrs. development Beatty Run pool Cooperstown field	2,000 Mcf AF 1,510 psi/72 hrs. development Beatty Run pool Cooperstown field	1,550 Mcf AF 1,500 psi/72 hrs. development Beatty Run pool Cooperstown field	700 Mcf AF 1,500 psi/72 hrs. development Beatty Run pool Cooperstown field	302 Mcf AF 1,200 psi/48 hrs. development Canal pool McCune Run field	402 Mcf AF 1,300 psi/48 hrs. development Beatty Run pool Cooperstown field

COUNTY Permit Number	Venango 121-41124-P	Venango 121-41125	Venango 121-41126	Venango 121-41150	Venango 121-41151	Venango 121-41152	Venango 121-41153	Venango 121-41252	Venango 121-41253	Venango 121-41268
NAME OF WELL	William Girty #1	Frank Woolstrum #2	Ralph Whitmer #3	Charles Burlingame #1	John Paul Smith #1	Raymond Armstrong #2	John Beightol #3	F. & O. Proper #1	G. Whetzel #1	H. & R. Hines #1
OPERATOR	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Mark Resources Corporation	Mark Resources Corporation	Mark Resources Corporation
TOWNSHIP	Jackson	Jackson	Jackson	Jackson	Plum	Jackson	Jackson	Jackson	Jackson	Jackson
QUADRANGLE	Oempseytown	Sugar Lake	Franklin	Franklin	Oempseytown	Oempseytown	Sugar Lake	Sugar Lake	Dempseytown	Sugar Lake
LATITUDE	13,980 ft. S 41°32'30"	5,520 ft. S 41°32'30"	3,900 ft. S 41°30'00"	1,700 ft. S 41°30'00"	6,900 ft. S 41°35'00"	3,700 ft. S 41°32'30"	10,475 ft. S 41°32'30"	12,700 ft. S 41°35'00"	13,600 ft. S 41°35'00"	5,250 ft. S 41°32'30"
LONGITUDE	4,510 ft. W 79°50'00"	2,285 ft. W 79°52'30"	6,300 ft. W 79°50'00"	8,650 ft. W 79°50'00"	1,875 ft. W 79°47'30"	10,100 ft. W 79°50'00"	950 ft. W 79°52'30"	1,300 ft. W 79°52'30"	6,200 ft. W 79°50'00"	6,400 ft. W 79°52'30"
DATE COMPLETED	6-4-85	6-11-85	5-23-85	6-1-85	6-22-85	7-23-85	6-19-85	6-4-85	6-9-85	6-10-85
ELEVATION	1373 GR	1215 GR	1264 GR	1259 GR	1400 GR	1412 GR	1340 GR	1462 GR	1247 GR	1441 GR
LOGS RECEIVED AND LOGGED INTERVALS		OBC/GR: 10-5363 LL/GR: 510-5359 PCL: 4970-5328	FDC/GR: 0-5555 GR/PCL: 5210-5532	DBC/GR: 0-5535				GR/OBC/CNL: 0-4459 PCL: 5270-5572 STRATA: 796-1344 GR/LL: 640-1465	GR/OBC/CNL: 0-5380 PCL: 5010-5321 STRATA: 1100-5296 GR/LL: 600-5370	GR/OBC/CNL: 0-5615 STRATA: 803-5457 GR/LL: 630-5605 GR/PCL: 5350-5601
TULLY LIMESTONE	3713-	3474-	3637-	3604-	3639-	3624-	3637-	3662-	3480-	3672-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3899-	3702-	3870-	3834-	3888-	3902-	3813-	3890-	3712-	3896-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	4072-	3838-	3996-	3964-	4018-	4034-	3946-	4030-	3846-	4036-
SILURIAN-DEVONIAN CARBONATES	4112-	3856-	4010-	3978-	4050-	4052-	3976-	4052-	3878-	4056-
SALINA GROUP LOCKPORT DOLOMITE	4440- 4913-	3966- 4710-	4140- 4914-	4104- 4884-	4352- 4773-	4380- 4880-	4348- 4807-	4150- 4894-	3978- 4710-	4164- 4912-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	5272- 5342-	5001- 5063-	5190- 5259-	5166- 5232-	5138- 5203-	5191- 5258-	5165- 5231-	5182- 5246-	4990- -5054	5196- 5264-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5407- 5541- 5573-	5124- 5257- 5292-	5324- 5450- 5490-	5298- 5430- 5464-	5263- 5395- 5432-	5320- 5453- 5489-	5292- 5423- 5462-	5312- 5436- 5470-	5117- 5242- 5284-	5324- 5444- 5494-
QUEENSTON FORMATION	5588-	5306-	5506-	5478-	5442-	5501-	5476-	5487-	5295-	5508-
PRODUCING FORMATION		Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL		5126-5243	5328-5420	5307-5385	5301-5370	5354-5420	5311-5382	5355-5430	5155-5236	5368-5430
TOTAL DEPTH	5650	5369	5562	5544	5528	5571	5550	5560	5380	5620
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	Dry and abandoned development Beatty Run pool Cooperstown field	402 Mcf AF 1,470 psi/48 hrs. development Beatty Run pool Cooperstown field	165 Mcf AF 1,200 psi/48 hrs. development Beatty Run pool Cooperstown field	2,600 Mcf AF 1,350 psi/48 hrs. development Beatty Run pool Cooperstown field	500 Mcf AF 1,450 psi/48 hrs. development Beatty Run pool Cooperstown field	5,400 Mcf AF 1,440 psi/48 hrs. development Beatty Run pool Cooperstown field	307 Mcf AF 1,410 psi/48 hrs. development Beatty Run pool Cooperstown field	900 Mcf AF 1,475 psi/72 hrs. development Beatty Run pool Cooperstown field	1,600 Mcf AF 1,500 psi/72 hrs. development Beatty Run pool Cooperstown field	850 Mcf AF 1,460 psi/72 hrs. development Beatty Run pool Cooperstown field

Figure 33. *(Continued).*

COUNTY Permit Number	Venango 121-41271	Venango 121-41273	Venango 121-41275	Venango 121-41276	Venango 121-41283	Venango 121-41291	Venango 121-41295	Venango 121-41296	Venango 121-41297	Venango 121-41308
NAME OF WELL	Paul Wyant #1	Ralph Mitchell #3-R	Walter Dmiecinski #1-A	Wendell Minnigh #1	P. & D. Wagner #1	Grant Hefferman #1	Mary Herman #1	Therman Miller #1	Grove-Fratcher #1	Barber-Brady #1
OPERATOR	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Mark Resources Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Mark Resources Corporation	Mark Resources Corporation
TOWNSHIP	Jackson	Jackson	Jackson	Jackson	Jackson	Canal	Jackson	Jackson	Sugar Creek	Sugar Creek
QUADRANGLE	Franklin	Dempseytown	Sugar Lake	Sugar Lake	Sugar Lake	Utica	Sugar Lake	Franklin	Utica	Franklin
LATITUDE	9,275 ft. S 41°30'00"	10,680 ft. S 41°32'30"	14,950 ft. S 41°35'00"	580 ft. S 41°32'30"	6,600 ft. S 41°32'30"	2,410 ft. S 41°30'00"	14,010 ft. S 41°35'00"	9,150 ft. S 41°30'00"	14,530 ft. S 41°30'00"	1,400 ft. S 41°30'00"
LONGITUDE	6,925 ft. W 79°50'00"	8,410 ft. W 79°50'00"	1,700 ft. W 79°55'00"	1,890 ft. W 79°52'30"	5,480 ft. W 79°52'30"	3,100 ft. W 79°55'00"	1,350 ft. W 79°52'30"	9,450 ft. W 79°50'00"	5,740 ft. W 79°52'30"	8,350 ft. W 79°50'00"
DATE COMPLETED	7-1-85	6-13-85	6-24-85	8-29-85	7-20-85	7-5-85	8-22-85	7-9-85	7-5-85	7-30-85
ELEVATION	1379 GR	1147 GR	1582 GR	1502 GR	1440 GR	1537 GR	1507 GR	1370 GR	1082 GR	1480 GR
LOGS RECEIVED AND LOGGED INTERVALS		DBC/GR: 0-5362 LL/GR: 520-5366			GR/DBC/CNL: 0-5618 PCL: 5280-5539 STRATA: 3920-5540 GR/DLL: 650-5604				GR/DBC/CNL: 0-5462 PCL: 5080-5414 STRATA: 3700-5361 GR/LL: 537-5462	
TULLY LIMESTONE	3841-	3454-	3768-	3831-	3696-	3809-	3712-	3772-	3484-	3921-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	4072-	3684-	3970-	3950-	3923-	4033-	3939-	4001-	3700-	4141-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	4198-	3814-	4112-	4089-	4060-	4162-	4078-	4127-	3826-	4270-
SILURIAN-DEVONIAN CARBONATES	4228-	3828-	4140-	4113-	4080-	4180-	4098-	4148-	3856-	4279-
SALINA GROUP LOCKPORT DOLOMITE	4570- 5034-	3948- 4718-	4459- 4896-	4424- 4886-	4186- 4934-	4480- 4940-	4420- 4880-	4495- 4960-	3970- 4710-	4468- 5170-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	5393- 5461-	5000- 5063-	5258- 5322-	5239- 5303-	5214- 5288-	5320- 5380-	5233- 5300-	5318- 5384-	5038- 5104-	5434- 5564-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5526- 5660- 5693-	5126- 5263- 5296-	5378- 5520- 5550-	5362- 5500- 5534-	5348- 5454- 5516-	5440- 5590- 5620-	5360- 5493- 5528-	5451- 5586- 5617-	5170- 5296- 5346-	5666- 5774- 5804-
QUEENSTON FORMATION	5710-	5310-	5562-	5548-	5532-	5633-	5540-	5634-	5362-	5819-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5540-5630	5163-5243	5476-5516	5367-5482	5384-5461	5523-5600	5373-5491	5553-5532	5218-5296	5673-5770
TOTAL DEPTH	5770	5368	5596	5607	5650	5738	5613	5710	5466	5913
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,700 Mcf AF 1,350 psi/48 hrs. development Beatty Run pool Cooperstown field	2,100 Mcf AF 1,360 psi/48 hrs. development Beatty Run pool Cooperstown field	670 Mcf AF 1,160 psi/48 hrs. development Wilson Mills pool Lake Creek field	500 Mcf AF 1,420 psi/48 hrs. development Beatty Run pool Cooperstown field	516 Mcf AF 1,480 psi/72 hrs. development Beatty Run pool Cooperstown field	2,200 Mcf AF 1,440 psi/48 hrs. development Canal pool McCune Run field	500 Mcf AF 760 psi/48 hrs. development Beatty Run pool Cooperstown field	540 Mcf AF 1,000 psi/48 hrs. development Beatty Run pool Cooperstown field	1,700 Mcf AF 1,500 psi/72 hrs. development Takitezy pool Sugar Creek-Niles field	1,700 Mcf AF 1,490 psi/72 hrs. development Beatty Run pool Cooperstown field

COUNTY Permit Number	Venango 121-41311	Venango 121-41322	Venango 121-41328	Venango 121-41355	Venango 121-41356	Venango 121-41357	Venango 121-41360	Venango 121-41375	Venango 121-41380	Venango 121-41388
NAME OF WELL	Oavid Nelson #1	D. & D. Haun #3	P. J. McElhaney #1	George Tarr II #1	Wesley Pietz #3	Grant Hefferman #2	P. Motter #2	Thomas Stewart #1	Melvin Brown #1	William Bean #1
OPERATOR	Cabot Oil & Gas Corporation	Mark Resources Corporation	Mark Resources Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Mark Resources Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation
TOWNSHIP	Jackson	Jackson	Jackson	Jackson	Canal	Canal	Plum	Jackson	Canal	Canal
OUADRANGLE	Sugar Lake	Oempseytown	Oempseytown	Sugar Lake	Utica	Utica	Oempseytown	Utica	Utica	Utica
LATITUOE	2,110 ft. S 41°32'30"	5,800 ft. S 41°32'30"	300 ft. S 41°32'30"	1,600 ft. S 41°32'00"	7,525 ft. S 41°30'00"	4,300 ft. S 41°30'00"	12,950 ft. S 41°37'30"	7,800 ft. S 41°30'00"	380 ft. S 41°30'00"	9,000 ft. S 41°30'00"
LONGITUDE	6,990 ft. W 79°52'30"	11,600 ft. W 79°50'00"	6,600 ft. W 79°50'00"	10,100 ft. W 79°52'30"	8,822 ft. W 79°52'30"	2,880 ft. W 79°55'00"	3,000 ft. W 79°47'30"	5,550 ft. W 79°52'30"	1,375 ft. W 79°55'00"	7,100 ft. W 79°52'30"
DATE COMPLETEO	7-20-85	7-20-85	8-11-85	8-11-85	8-1-85	8-3-85	8-3-85	9-15-85	8-31-85	9-10-85
ELEVATION	1418 GR	1331 GR	1197 GR	1516 GR	1290 GR	1480 GR	1389 GR	1140 GR	1348 GR	1139 GR
LOGS RECEIVED AND LOGGED INTERVALS			GR/OBC/CNL: 0-4447 GR/LL: 500-4448 GR: 3600-5304 PCL: 5040-5300				GR/OBC/CNL: 0-5441 PCL: 5050-5408 STRATA: 3825-5356 GR/OLL: 500-5441			
TULLY LIMESTONE	3620-	3616-	3440-	3710-	3612-	3752-	3582-	3463-	3625-	3489-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3893-	3853-	3670-	3939-	3831-	3977-	3824-	3682-	3890-	3708-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3988-	3979-	3802-	4079-	3967-	4110-	3962-	3820-	3971-	3846-
SILURIAN-DEVONIAN CARBONATES	4013-	3996-	3834-	4095-	3985-	4140-	3980-	3847-	4000-	3875-
SALINA GROUP LOCKPORT DOLOMITE	4322- 4772-	4164- 4835-	3927- 4668-	4418- 4860-	4331- 4732-	4470- 4934-	4076- 4752-	4190- 4670-	4329- 4792-	4214- 4690-
ROCHESTER SHALE IRONDEOUOIT OOLOMITE	5130- 5193-	5136- 5222-	4949- 5012-	5220- 5288-	5168- 5237-	5299- 5365-	5054- 5118-	5030- 5096-	5148- 5221-	5046- 5120-
GRIMSBY FORMATION CABOT HEAO SHALE WHIRLPOOL SANDSTONE	5253- 5390- 5426-	5332- 5422- 5454-	5074- 5206- 5240-	5342- 5480- 5513-	5307- 5443- 5477-	5426- 5570- 5600-	5180- 5304- 5342-	5162- 5302- 5335-	5281- 5422- 5455-	5185- 5324- 5359-
QUEENSTON FORMATION	5432-	5464-	5252-	5529-	5489-	5612-	5354-	5349-	5467-	5370-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5259-5382	5336-5418	5131-5200	5364-5477	5305-5414	5445-5554	5223-5297	5163-5293	5290-5414	5193-5305
TOTAL DEPTH	5510	5610	5370	5596	5593	5690	5463	5422	5535	5402
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,000 Mcf AF 650 psi/48 hrs. development Beatty Run pool Cooperstown field	1,958 Mcf AF 1,500 psi/72 hrs. development Beatty Run pool Cooperstown field	700 Mcf AF 1,480 psi/72 hrs. development Beatty Run pool Cooperstown field	500 Mcf AF 1,250 psi/48 hrs. development Beatty Run pool Cooperstown field	662 Mcf AF 460 psi/48 hrs. development Beatty Run pool Cooperstown field	500 Mcf AF 1,150 psi/48 hrs. development Canal pool McCune Run field	400 Mcf AF 1,480 psi/72 hrs. development Beatty Run pool Cooperstown field	500 Mcf AF 1,145 psi/48 hrs. development Beatty Run pool Cooperstown field	500 Mcf AF 850 psi/48 hrs. development Beatty Run pool Cooperstown field	500 Mcf AF 875 psi/48 hrs. development Beatty Run pool Cooperstown field

Figure 33. *(Continued)*.

COUNTY Permit Number	Venango 121-41409	Venango 121-41444	Venango 121-41573	Venango 121-41575	Warren 123-28207	Warren 123-32485	Warren 123-33829	Warren 123-34473	Warren 123-34697	Warren 123-34824
NAME OF WELL	Andrew Keeley #1	William Thompson #2	Raymond Armstrong #1	Williard Glover #1	R. Jennings #1	P. Toplovich #1	T. Reed #1	Messenger-Dodd #1	Silvis #1	Reilly #2
OPERATOR	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Cabot Oil & Gas Corporation	Arrowhead Gas Producers, Inc.	U. S. Energy Development Corp.	U. S. Energy Development Corp.	Universal Resources Holdings, Inc.	Chautauqua Energy, Incorporated	U. S. Energy Development Corp.
TOWNSHIP	Jackson	Plum	Jackson	Plum	Freehold	Columbus	Columbus	Columbus	Columbus	Freehold
QUADRANGLE	Dempseytown	Dempseytown	Sugar Lake	Dempseytown	Lottsville	Columbus	Columbus	Columbus	Columbus	Lottsville
LATITUDE	900 ft. S 41°32'30"	6,350 ft. S 41°35'00"	2,340 ft. S 41°32'30"	10,150 ft. S 41°35'00"	1,500 ft. S 42°00'00"	9,150 ft. S 42°00'00"	4,425 ft. S 42°00'00"	8,175 ft. S 41°57'30"	1,140 ft. S 42°00'00"	6,060 ft. S 42°00'00"
LONGITUDE	9,000 ft. W 79°50'00"	6,170 ft. W 79°47'30"	500 ft. W 79°52'30"	1,050 ft. W 79°47'30"	5,950 ft. W 79°22'30"	1,850 ft. W 79°32'30"	475 ft. W 79°32'30"	1,950 ft. W 79°35'00"	5,500 ft. W 79°35'00"	9,125 ft. W 79°27'30"
DATE COMPLETED	9-8-85	9-8-85	9-16-85	9-18-85	8-19-80	2-2-83	3-30-84	8-23-84	3-1-84	2-26-85
ELEVATION	1198 GR	1465 GR	1540 GR	1430 GR	1699 GR	1488 GR	1575 GR	1412 GR	1691 GR	1695 GR
LOGS RECEIVED AND LOGGED INTERVALS						DBC/CNL: 2385-4482	DBC/CNL: 2506-4504 GR/DLL: 2496-4496 Laser: 4260-4412	DBC/CNL: 2543-4536 GR/LL: 3561-4535	DBC/CNL: 2500-4546 GR/DLL: 2500-4543	DBC/CNL: 2950-4740 DIL: 2950-4750
TULLY LIMESTONE	3429-	3713-	3778-	3713-	3140-	2704-	2776-	2756-	2824-	3004-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3659-	3953-	4004-	3962-	3327-	2978-	3054-	3030-	3086-	3288-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3796-	4086-	4140-	4093-						
SILURIAN-DEVONIAN CARBONATES	3816-	4110-	4160-	4112-		3148-	3234-	3205-	3296-	3464-
SALINA GROUP LOCKPORT DOLOMITE	4131- 4572-	4420- 4848-	4481- 4950-	4442- 4878-	3484-	3210- 3792-	3298- 3866-	3266- 3840-	3356- 3934-	3518- 4083-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4944- 5010-	5402- 5218-	5302- 5370-	5230- 5302-	4064-	4056- 4116-	4120- 4192-	4096- 4172-	4189- 4245-	4357- 4414-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5070- 5203- 5240-	5329- 5457- 5495-	5430- 5562- 5599-	5363- 5497- 5529-	4480-	4152- 4283- 4310-	4230- 4345- 4395-	4212- 4322- 4372-	4284- 4410- 4436-	4452- 4587- 4618-
QUEENSTON FORMATION	5252-	5503-	5611-	5539-	4692-	4337-	4408-	4386-	4450-	4746-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5079-5204	5334-5423	5450-5563	5369-5464	4575-4685	4208-4322	4263-4394	4249-4380	4328-4446	4471-457D
TOTAL DEPTH	5322	5553	5667	5583	4766	4485	4506	4560	4568	4764
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	500 Mcf AF 1,20D psi/48 hrs. development Beatty Run pool Cooperstown field	500 Mcf AF 1,404 psi/48 hrs. development Beatty Run pool Cooperstown field	500 Mcf AF 1,300 psi/48 hrs. development Beatty Run pool Cooperstown field	500 Mcf AF 1,480 psi/48 hrs. development Beatty Run pool Cooperstown field	100 Mcf AF 7D0 psi/48 hrs. development Stillwater field	639 Mcf AF 1,240 psi/48 hrs. development Dewey Corners pool Columbus field	5,116 Mcf AF 1,250 psi/72 hrs. development Dewey Corners pool Columbus field	2,008 Mcf AF 1,255 psi/48 hrs. development Whites Run pool Columbus field	2,00D Mcf AF 1,300 psi/72 hrs. development Brokenstraw field	2,280 Mcf AF 1,060 psi/72 hrs. development Dewey Corners pool Columbus field

COUNTY Permit Number	Warren 123-34843	Warren 123-34918	Warren 123-35253	Warren 123-35461	Warren 123-35536	Warren 123-35648	Warren 123-35649	Warren 123-35650	Warren 123-35726	Warren 123-35777
NAME OF WELL	Smith/Ras #1	Harold Cornish #12	Michael Sekerak #5	Oavid Sekerak #1	Eddy #3	Hubert B. Martin #1	Stockton-Bennink #1	George Kerchak #1	Michael Sekerak #6	Sturges #1
OPERATOR	U. S. Energy Oevelopment Corp.	Universal Resources Holdings, Inc.	Universal Resources Holdings, Inc.	Universal Resources Holdings, Inc.	Universal Resources Holdings, Inc.	Royal Petroleum Properties, Inc.	Universal Resources Holdings, Inc.	N.E.A. Cross Company	Universal Resources Holdings, Inc.	U. S. Energy Oevelopment Corp.
TOWNSHIP	Columbus	Columbus	Columbus	Columbus	Columbus	Southwest	Columbus	Columbus	Columbus	Freehold
QUADRANGLE	Columbus	Columbus	Columbus	Columbus	Lottsville	Grand Valley	Columbus	Columbus	Columbus	Lottsville
LATITUDE	2,650 ft. S 42°00'00"	7,370 ft. S 42°00'00"	7,225 ft. S 41°57'30"	6,100 ft. S 41°57'30"	2,790 ft. S 41°57'30"	8,900 ft. S 41°40'00"	11,950 ft. S 41°57'30"	862 ft. S 41°57'30"	14,065 ft. S 41°57'30"	1,740 ft. S 42°00'00"
LONGITUDE	9,275 ft. W 79°30'00"	5,690 ft. W 79°30'00"	4,200 ft. W 79°35'00"	5,630 ft. W 79°35'00"	10,350 ft. W 79°27'30"	6,250 ft. W 79°35'00"	11,100 ft. W 79°32'30"	3,625 ft. W 79°35'00"	7,265 ft. W 79°35'00"	4,240 ft. W 79°27'30"
DATE COMPLETED	3-26-84	9-8-84	11-8-84	11-1-84	8-13-84	10-8-84	12-19-84	11-13-84	11-25-84	12-19-84
ELEVATION	1575 GR	1718 GR	1428 GR	1438 GR	1570 GR	1442 GR	1431 GR	1617 GR	1395 GR	1480 GR
LOGS RECEIVED AND LOGGED INTERVALS	OBC/CNL: 2518-4516 GR/DLL: 2518-4508	OBC/CNL: 2629-4670 OIL/LL: 2631-4670	OBC/CNL: 2450-4455 GR/LL: 2450-4452	OBC/CNL: 2400-4462 GR/LL: 2393-4461	OBC/CNL: 2596-4638 OIL/LL: 2595-4640	OBC/CNL: 725-5596 GR/OLL: 800-5596 Laser: 5314-5450 SON: 725-5592	OBC/CNL: 2618-4623 GR/LL: 2400-4490	FOC/CNL: 3600-4599 LL/GR: 2600-4599		OBC/CNL: 2650-4488 GR/OIL: 2650-4488
TULLY LIMESTONE	2768-	2974-	2754-	2756-	2948-	3720-	2896-	2884-	2757-	2730-
ONONDAGA LIMESTONE MUNTERSVILLE CHERT	3048-	3258-	3028-	3030-	3228-	3996-	3172-	3158-	3033-	3016-
ORISKANY SANDSTONE RIDGELEY SANDSTONE	3234-				3398-	4118-	3344-			
SILURIAN-DEVONIAN CARBONATES	3249-	3436-	3210-	3213-	3426-	4146-	3364-	3348-	3211-	3192-
SALINA GROUP LOCKPORT DOLOMITE	3294- 3861-	3496- 4074-	3272- 3848-	3274- 3856-	3456- 4038-	4218- 4908-	3408- 3982-	3404- 3964-	3571-	3252- 3820-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4108- 4184-	4320- 4392-	4114- 4176-	4114- 4174-	4278- 4358-	5198- 5270-	4250- 4314-	4212- 4286-	4191-	4078- 4141-
GRIMSBY FORMATION CABOT MEAO SHALE WHIRLPOOL SANDSTONE	4222- 4352- 4382-	4430- 4560- 4594-	4216- 4330- 4378-	4212- 4331- 4374-	4398- 4510- 4562-	5318- 5453- 5492-	4354- 4468- 4514-	4308- 4448- 4484-	4202- 4349- 4391-	4177- 4312- 4344-
QUEENSTON FORMATION	4396-	4604-	4390-	4388-	4580	5500-	4530-	4498-	4409-	4360-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4269-4383	4477-4598	4263-4364	4255-4382	4451-4572	5367-5498	4329-4443	4401-4495	4271-4406	4233-4356
TOTAL DEPTH	4525	4720	4494	4497	4696	5605	4659	4633	4560	4492
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	5,208 Mcf AF 1,240 psi/72 hrs. development Oewey Corners pool Columbus field	1,943 Mcf AF 1,200 psi/48 hrs. development Oewey Corners pool Columbus field	1,607 Mcf AF 1,260 psi/48 hrs. development Stroup pool Brokenstraw field	1,599 Mcf AF 1,160 psi/48 hrs. development Stroup pool Brokenstraw field	3,460 Mcf AF 1,185 psi/48 hrs. development Oewey Corners pool Columbus field	900 Mcf AF 1,100 psi/72 hrs. development Kirvan pool Enterprise field	558 Mcf AF 1,220 psi/48 hrs. development Whites Run pool Columbus field	310 Mcf AF 850 psi/48 hrs. development Brokenstraw field	846 Mcf AF 1,230 psi/48 hrs. development Hare Creek pool Columbus field	1,140 Mcf AF 1,150 psi/72 hrs. development Freehold pool Stillwater field

Figure 33. *(Continued).*

COUNTY Permit Number	Warren 123-36024	Warren 123-36075	Warren 123-36076	Warren 123-36239	Warren 123-36649	Warren 123-38726	Warren 123-38727	Warren 123-38753	Warren 123-38901	Warren 123-38902
NAME OF WELL	Thompson Maple Products #1	Steven Jankowski #1	Allene H. Webb #1	Sidney Smith #1	Burleigh #12	Margaret Alsdorf #5	Kirvan #1	Paul Wright #1	Lamoree #1	Willison Kellogg #1
OPERATOR	N.E.A. Cross Company	N.E.A. Cross Company	N.E.A. Cross Company	Universal Resources Holdings, Inc.	McLan Associates, Incorporated	Universal Resources Holdings, Inc.	Quaker State Oil Refining Corp.	Quaker State Resources Corp.	Quaker State Resources Corp.	Universal Resources Holdings, Inc.
TOWNSHIP	Columbus	Columbus	Columbus	Columbus	Eldred	Spring Creek	Southwest	Southwest	Eldred	Spring Creek
QUADRANGLE	Columbus	Columbus	Columbus	Columbus	Grand Valley	Spring Creek	Grand Valley	Grand Valley	Grand Valley	Spring Creek
LATITUDE	1,750 ft. S 41°55'00"	7,350 ft. S 41°57'30"	7,300 ft. S 41°57'30"	8,400 ft. S 41°57'30"	8,500 ft. S 41°45'00"	9,550 ft. S 41°52'30"	8,800 ft. S 41°40'00"	600 ft. S 41°40'00"	1,100 ft. S 41°45'00"	3,240 ft. S 41°50'00"
LONGITUDE	5,300 ft. W 79°35'00"	1,050 ft. W 79°32'30"	2,800 ft. W 79°32'30"	6,950 ft. W 79°35'00"	8,000 ft. W 79°35'00"	4,675 ft. W 79°32'30"	8,000 ft. W 79°35'00"	11,100 ft. W 79°30'00"	3,200 ft. W 79°30'00"	2,775 ft. W 79°32'30"
DATE COMPLETED	1-3-85	1-13-85	1-27-85	12-7-84	3-10-85	8-1-84	8-23-84	9-3-84	9-18-84	7-26-84
ELEVATION	1400 GR	1480 GR	1510 GR	1418 GR	1700 GR	1487 GR	1323 GR	1626 GR	1660 GR	1597 GR
LOGS RECEIVED AND LOGGED INTERVALS	OBC/GR: 2500-4542	OBC/GR: 2500-4551	GR/FOC: 2640-4626	OBC/CNL: 2400-4457 GR/LL: 2400-4456		OBC/CNL: 2878-4872 GR/LL: 2820-4869				OBC/CNL: 3091-5119 GR/LL: 3086-5114
TULLY LIMESTONE	2792-	2862-	2890-	2744-	3716-	3120-	3602-	3910-	3836-	3354-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3070-	3146-	3170-	3018-	3984-	3388-	3876-	4196-	4124-	3618-
ORISKANY SANDSTONE RIDGELEY SANDSTONE		3380-				3542-				
SILURIAN-DEVONIAN CARBONATES	3240-	3408-	3332-	3196-	4088-	3556-	3998-	4302-	4246-	3760-
SALINA GROUP LOCKPORT DOLOMITE	3313- 3946-	3668- 3942-	3397- 3971-	3262- 3838-	4230- 4833-	3606- 4244-	4152- 4784-	4416- 5050-	4308- 4968-	3820- 4442-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	4166- 4228-	4214- 4273-	4222- 4300-	4126- 4166-	5200-	4455- 4550-	5066- 5142-	5366- 5436-	5246- 5312-	4721- 4786-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	4251- 4352- 4432-	4308- 4438- 4480-	4336- 4473- 4508-	4210- 4337- 4368-	5250- 5370- 5412-	4598- 4713- 4758-	5192- 5327- 5364-	5488- 5642- 5664-	5358- 5494- 5530-	4840- 4962- 4994-
QUEENSTON FORMATION	4445-	4493-	4520-	4382-	5426-	4772-	5373-	5678-	5546-	5004-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	4305-4381	4369-4424	4401-4457	4250-4376	5263-5422	4638-4763	5242-5372	5633-5665	5408-5541	4881-5001
TOTAL DEPTH	4565	4620	4630	4492	5526	4874	5486	5786	5663	5121
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	2,100 Mcf AF 1,200 psi/48 hrs. development Hare Creek pool Columbus field	3,000 Mcf AF 1,150 psi/48 hrs. development Whites Run pool Columbus field	2,000 Mcf AF 1,100 psi/48 hrs. development Whites Run pool Columbus field	1,245 Mcf AF 1,220 psi/48 hrs. development Brokenstraw field	1,000 Mcf AF 1,315 psi/24 hrs. development Three Bridge pool Selkirk field	930 Mcf AF 1,280 psi/48 hrs. development Spring Creek pool Spring Creek field	1,100 Mcf AF 1,350 psi/48 hrs. Deeper pool discovery Kirvan pool Enterprise field	1,700 Mcf AF 1,300 psi/48 hrs. extension Campbell Creek pool Goodwill Hill-Grand Valley field	1,100 Mcf AF 1,350 psi/48 hrs. extension Campbell Creek pool Goodwill Hill-Grand Valley field	543 Mcf AF 1,270 psi/48 hrs. development County Line field

COUNTY Permit Number	Warren 123-39114	Warren 123-39199	Warren 123-39202	Warren 123-39206	Warren 123-39208	Warren 123-39211	Warren 123-39212	Warren 123-39213	Warren 123-39214	Warren 123-39216
NAME OF WELL	Wright Brothers #1	Morto Brothers #1	H. Cornish #10	Stockton Unit #1	Stockton Unit #3	Beck-Crosby #1	Webster #1	O. Wright #1	Ruth Baccus #1	Lyle Smith #1
OPERATOR	Quaker State Oil Refining Corp.	U. S. Energy Oevelopment Corp.	Universal Resources Holdings, Inc.	Universal Resources Holdings, Inc.	Universal Resources Holdings, Inc.	U. S. Energy Oevelopment Corp.	U. S. Energy Oevelopment Corp.	U. S. Energy Oevelopment Corp.	N.E.A. Cross Company	Universal Resources Holdings, Inc.
TOWNSHIP	Southwest	Freehold	Columbus	Columbus	Columbus	Freehold	Bear Lake	Columbus	Columbus	Columbus
QUADRANGLE	Grand Valley	Lottsville	Columbus	Columbus	Columbus	Columbus	Columbus	Columbus	Columbus	Columbus
LATITUDE	10,400 ft. S 41°42'30"	4,490 ft. S 42°00'00"	1,190 ft. S 42°00'00"	13,630 ft. S 41°57'30"	14,850 ft. S 41°57'30"	6,300 ft. S 42°00'00"	1,200 ft. S 42°00'00"	2,900 ft. S 42°00'00"	8,050 ft. S 41°57'30"	50 ft. S 41°57'30"
LONGITUDE	4,875 ft. W 79°32'30"	5,750 ft. W 79°27'30"	4,190 ft. W 79°30'00"	10,035 ft. W 79°32'30"	5,720 ft. W 79°32'30"	250 ft. W 79°30'00"	400 ft. W 79°30'00"	6,250 ft. W 79°30'00"	10,900 ft. W 79°30'00"	1,685 ft. W 79°35'00"
DATE COMPLETED	9-11-84	2-12-85	12-13-84	12-27-84	11-3-84	11-3-84	12-28-84	10-1-84	10-26-84	11-18-84
ELEVATION	1442 GR	1482 GR	1552 GR	1487 GR	1632 GR	1768 GR	1662 GR	1540 GR	1450 GR	1613 GR
LOGS RECEIVED AND LOGGED INTERVALS		OBC/CNL: 2490-4490 OIL: 2490-4490	OBC/CNL: 2399-4464 GR/LL: 2400-4465	OBC/CNL: 2500-4534 GR/LL: 2574-4533	GR/OBC/CNL: 489-4737 GR/OIL/LL: 2750-4756	OBC/CNL: 2800-4780 GO/GR: 2800-4816	OBC/CNL: 2850-4660 OIL: 2850-4660	GR/OBC: 2720-4474 GR/OIL: 2720-4474 GR: 4050-4438		DBC/CNL: 2547-4594 GR/LL: 2544-4593
TULLY LIMESTONE	3682-	2756-	2750-	2886-	3050-	3024-	2886-	2742-	2824-	2878-
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	3962-	3034-	3032-	3164-	3328-	3306-	3168-	3026-	3110-	3146-
ORISKANY SANDSTONE RIDGELEY SANDSTONE			3220-							
SILURIAN-DEVONIAN CARBONATES	4074-	3212-	3232-	3330-	3487-	3480-	3354-	3206-	3274-	3334-
SALINA GROUP LOCKPORT DOLOMITE	4172- 4844-	3270- 3848-	3278- 3847-	3398- 3958-	3556- 4136-	3540- 4152-	3408- 3987-	3268- 3834-	3340- 4010-	3385- 3954-
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	5124- 5192-	4100- 4172-	4115- 4164-	4228- 4292-	4402- 4468-	4373- 4432-	4222- 4304-	4079- 4146-	4150- 4240-	4217- 4276-
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5238- 5365- 5416-	4210- 4337- 4372-	4201- 4314- 4360-	4313- 4462- 4497-	4508- 4628- 4674-	4470- 4586- 4635-	4342- 4470- 4500-	4182- 4300- 4346-	4264- 4400- 4447-	4314- 4453- 4474-
QUEENSTON FORMATION	5432-	4390-	4375-	4508-	4686-	4649-	4514-	4360-	4458-	4488-
PRODUCING FORMATION	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina	Medina
PRODUCING INTERVAL	5290-5429	4256-4381	4256-4368	4373-4451	4553-4677	4527-4641	4508-4512	4203-4354	4362-4453	4408-4484
TOTAL DEPTH	5573	4503	4502	4618	4824	4816	4699	4479	4540	4625
DEEPEST FORMATION REACHED	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston	Queenston
RESULTS	1,000 Mcf AF 1,300 psi/48 hrs. development Campbell Creek pool Goodwill Hill-Grand Valley field	1,000 Mcf AF 1,025 psi/72 hrs. development Oewey Corners pool Columbus field	1,950 Mcf AF 1,220 psi/48 hrs. development Oewey Corners pool Columbus field	720 Mcf AF 1,250 psi/48 hrs. development Whites Run pool Columbus field	900 Mcf AF 1,200 psi/48 hrs. development Whites Run pool Columbus field	1,635 Mcf AF 750 psi/72 hrs. development Oewey Corners pool Columbus field	1,460 Mcf AF 1,200 psi/72 hrs. development Oewey Corners pool Columbus field	895 Mcf AF 1,150 psi/72 hrs. development Oewey Corners pool Columbus field	300 Mcf AF 700 psi/48 hrs. development Whites Run pool Columbus field	1,422 Mcf AF 1,240 psi/48 hrs. development Brokenstraw field

Figure 33. *(Continued).*

COUNTY Permit Number	Warren 123-39220	Warren 123-39221	Warren 123-39273	Warren 123-39307	Westmoreland 129-22395	Westmoreland 129-22498				
NAME OF WELL	Baker #1	Kinley Dil Co. #1	R. Trisket #1	Paul W. Suchar #1	Forbes State Forest #2	Commonwealth of PA Tract 350 #1				
OPERATOR	Quaker State Dil Refining Corp.	Meridian Exploration #178	U. S. Energy Development Corp.	N.E.A. Cross Company	CNG Development Company	CNG Development Company				
TOWNSHIP	Deerfield	Cherry Grove	Columbus	Columbus	Cook	Donegal				
QUADRANGLE	Tidioute	Sheffield	Columbus	Columbus	Ligonier	Seven Springs				
LATITUDE	2,150 ft. S 41°45'00"	4,450 ft. S 41°40'00"	1,000 ft. S 42°00'00"	7,850 ft. S 41°57'30"	12,000 ft. S 40°10'00"	14,700 ft. S 40°07'30"				
LONGITUDE	7,900 ft. W 79°27'30"	7,400 ft. W 79°05'00"	1,700 ft. W 79°32'30"	10,500 ft. W 79°32'30"	6,250 ft. W 79°12'30"	5,850 ft. W 79°15'00"				
DATE COMPLETED	9-25-84	11-7-84	12-14-84	11-1-84	10-13-84	11-10-84				
ELEVATION	1703 GR	1860 GR	1521 GR	1440 GR	2539 GR	2644 GR				
LOGS RECEIVED AND LOGGED INTERVALS		DBC/CNL: 582-5406 GR/IL: 582-5404	GR/DBC/CNL: 0-4430 GR/DLL: 2600-4596 GR/DIL: 2650-4430	FDC/GR: 2400-4426						
TULLY LIMESTONE	3824-	4559-	2886-	2781-	7104-	6936-				
ONONDAGA LIMESTONE HUNTERSVILLE CHERT	4114-	4901-	3158-	3056-	8095- 811D-	7612-				
ORISKANY SANDSTONE RIDGELEY SANDSTONE					8290-	7752-				
SILURIAN-DEVONIAN CARBONATES	4224-	4960-	3348-	3228-	8410-	7854-				
SALINA GROUP LOCKPORT DOLOMITE	4288- 4954-	5090-	3404- 3964-	3290- 3859-						
ROCHESTER SHALE IRONDEQUOIT DOLOMITE	5250- 5312-		4212- 4286-	4122- 4186-						
GRIMSBY FORMATION CABOT HEAD SHALE WHIRLPOOL SANDSTONE	5364- 5486- 5528-		43D8- 4448- 4484-	4208- 4336- 4390-						
QUEENSTON FORMATION	5542-		4498-	4404-						
PRODUCING FORMATION	Medina	Helderberg	Medina	Medina		Huntersville, Ridgeley				
PRODUCING INTERVAL	5530-5486	4991-5030	4191-4314	4280-4335		7752-7797				
TOTAL DEPTH	5663	5410	4432	4433	8490	8002				
DEEPEST FORMATION REACHED	Queenston	Salina	Queenston	Queenston	Helderberg	Helderberg				
RESULTS	1,700 Mcf AF 1,430 psi/48 hrs. extension Trimm pool Sanford field	44 Mcf AF 1,024 psi/96 hrs. Deeper pool test Kinley pool Bull Hill field	5,210 Mcf AF 1,20D psi/72 hrs. development Dewey Corners pool Columbus field	4,50D Mcf AF 1,15D psi/48 hrs. development Whites Run pool Columbus field	Dry and abandoned extension Linn Run field	34 Mcf Nat. 1,755 Mcf AF 2,240 psi/48 hrs. extension Myersbrook pool Seven Springs field				

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